ROBAN

B-25J Mitchell

RC Airplane KIT

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Manual

FIXED WING RC AIRCRAFT

Super Scale RC Airplane Manual – B-25J

Release 1.0 - Jan 2015

Roban Limited
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SPECIFICATIONS

Body length:	1566mm
Wingspan:	2060mm
Height:	422mm
Dry weight:	4.5kg
Flying weight:	6.1-7kg
Motor:*	2x 500KV 4020 brushless outrunner, 4-6S capable
Speed controller:*	2x 60A brushless, 4-6S capable
Servo:*	7x metal gear 40g, 2x metal gear wing mount type
Battery:*	2x 18.5V 4000mAh 35C+
Flight time:	8 minutes
Takeoff weight:	8500g
Radio Control:*	min. 6 channel with flap program

**) Optionally available equipment*

Our goal was to create a high scale detail, high performance airplane, with a minimum of assembly work and simple maintenance.
Please read this user manual carefully, it contains instructions for the correct assembly of the model.
Please refer to the web site www.robanmodel.com for updates and other important information.
Thank you for your purchase, and have a great time with your Airplane!
Roban Limited

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IMPORTANT NOTES

*This radio controlled airplane is not a toy.
*This radio controlled airplane can be very dangerous.
*This radio controlled airplane is a technically complex device which has to be built and handled very carefully.
*This radio controlled airplane must be built following these instructions. This manual provides the necessary information to correctly assemble the model. It is necessary to carefully follow all the instructions.
*Inexperienced pilots must be monitored by expert pilots.
*All operators must wear safety glasses and take appropriate safety precautions.
*A radio controlled airplane must only be used in open spaces without obstacles, and far enough from people to minimize the possibility of accidents or of injury to property or persons.
*A radio controlled airplane can behave in an unexpected manner, causing loss of control of the model, and make it a very dangerous flying object.
*Lack of care with assembly or maintenance can result in an unreliable and dangerous model.

*Neither Roban Limited nor its agents have any control over the assembly, maintenance and use of this product. Therefore, no responsibility can be traced back to the manufacturer. You hereby agree to release Roban Limited from any responsibility or liability arising from the use of this product.

SAFETY GUIDELINES

*Fly only in areas dedicated to the use of model airplanes.
*Follow all control procedures for the radio frequency system.
*It is necessary that you know your radio system well. Check all functions of the transmitter before every flight.
*The blades of the model rotate at a very high speed; be aware of the danger they pose and the damage they may cause.
*Never fly in the vicinity of other people.

NOTES FOR ASSEMBLY

Please refer to this manual for assembly instructions for this model.
Follow the order of assembly indicated. The instructions are divided into chapters, which are structured in a way that each step is based on the work done in the previous step. Changing the order of assembly may result in additional or unnecessary steps.
Use thread lockers and retaining compounds as indicated. In general, each bolt or screw that engages with a metal part requires thread lock.
Factory pre-assembled components have been assembled with all the required thread lock and lubricants, and have passed quality control. It is not necessary to disassemble and re-assemble them.
We do not recommend the use of thin cyanoacrylate glue for surface mount of painted parts. The fumes of the curing glue leave white stains on the clear coat, which are hard to remove.

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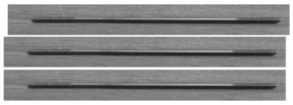
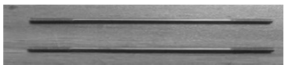
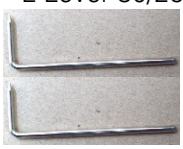
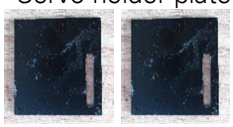
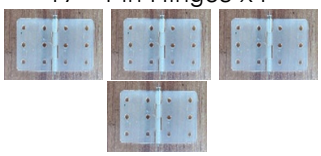
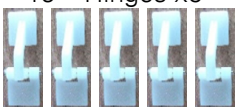
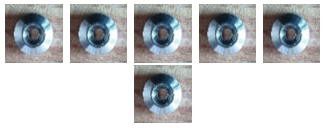
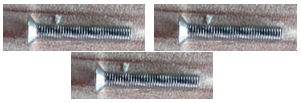
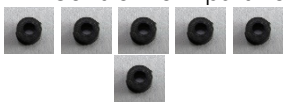
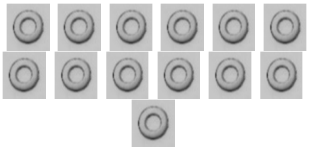
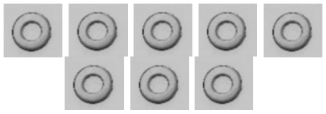
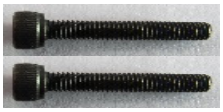
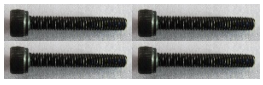
1 – Ball links x16	2 – 5mm Uniball x16	3 – Long Uniball x1	4 – Nut M2 x20
5 – Nut M2.5 x1	6 – Pushrod 2.3x62 x4	7 – Pushrod 2.3x49 x3 	8 – Pushrod 2.3x32 x2 
9 – Pushrod 2.3x76 x1	10 – Pushrod 2.3x55 x1	11 – L Lever 80/25 x2 	12 – L Lever 60/25 x2
13 – T-Junction x2	14 – Servo Disc x1	15 – Servo holder plate x4	16 – Servo holder plate x2 
17 – Pin Hinges x4 	18 – Hinges x5	19 – Hinges x5 	20 – Control horns x4
21 – Control horn washer x6 	22 – Screw M2x7 x6	23 – Control horn x6	24 – Screw M3x25 x4
25 – Screw M3x18 x3 	26 – Control horn part x6	27 – Control horn part x6 	28 – Control clevis x6
29 – Pushrod keepers x6	30 – Screw M3x22 x2	31 – Washer M3x8 x13 	32 – Washer M3x10 x8 
33 – Screw M4x45 x2	34 – Screw M3x22 x2 	35 – Screw M3x18 x4 	36 – Screw M3x14 x8

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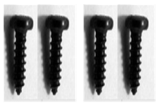
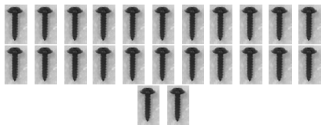
37 – Screw M3x12 x6	38 – Screw M3x30 x1	39 – Screw A3x12 x4	40 – Screw A2x12 x4 
41 – Screw A2x5 x6	42 – Screw A2x6 x24 	43 – Left aft wheel	44 – Front wheel strut
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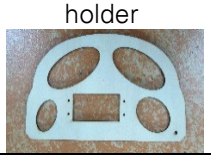
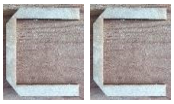
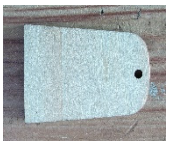
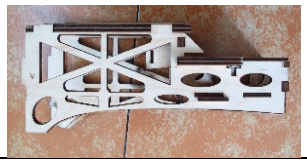
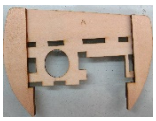
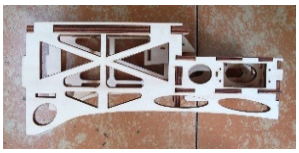
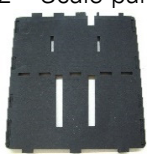
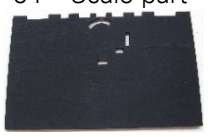
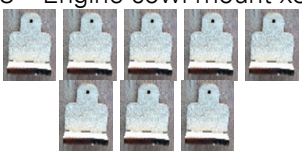
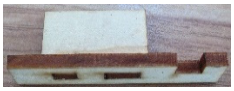
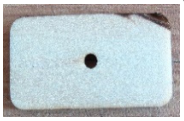
53 – Tail gunner canopy	54 – Top gunner canopy	55 – Bomb door servo holder 	56 – Servo holder x2 
57 – Servo latch 	58 – LHS Retract mount	59 – LHS Motor mount 	60 – RHS Retract mount 
61 – RHS Motor mount 	62 – Scale part 	63 – Scale part	64 – Scale part 
65 – Servo mount x2	66 – Servo mount x4	67 – Servo mount x2	68 – Engine cowl mount x8 
69 – Front wheel mount 	70 – Front wheel rod guide 	71 – RHS Firewall	72 – LHS Firewall

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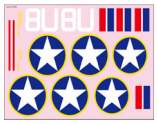
73 – Scale cockpit	74 – Scale part	75 – Scale part x2	76 – Scale part
77 – Scale part x6	78 – Scale part x3	79 – Scale part	80 – Scale part
81 – Scale part	82 – Scale part	83 – Side windows x2	84 – Prolonging wire
85 – Decal set 			

ADDITIONAL COMPONENTS REQUIRED

*Electric Motor:
  2x 6S – 500KV 4020 type

*Speed controller:
  minimum 60A to be safe
*Batteries: 2x 4-6S 4000mAh
*
*Radio power system
*7 40g metal geared servos
*2 flat type wing mount metal geared servos
*6 channel radio control system on 2.4 GHz

TOOLS, LUBRICANTS, ADHESIVES

*Generic pliers
*Hexagonal driver, size 1.5, 2, 2.5, 3, 4mm
*4mm T-Wrench
*5.5mm Socket wrench (for M3 nuts)
*8mm Hex fork wrench (for M5 nuts)
*Medium threadlocker (eg. Loctite 243)
*Strong retaining compound (eg. Loctite 648)
*Spray lubricant (eg. Try-Flow Oil)
*Synthetic grease (eg. Tri-Flow Synthetic Grease)
*Cyanoacrylate adhesive
*Epoxy glue 30 min.
*Soldering equipment (for motor wiring)

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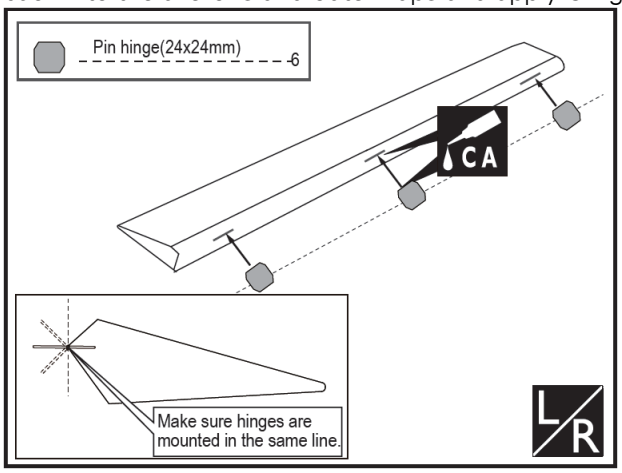
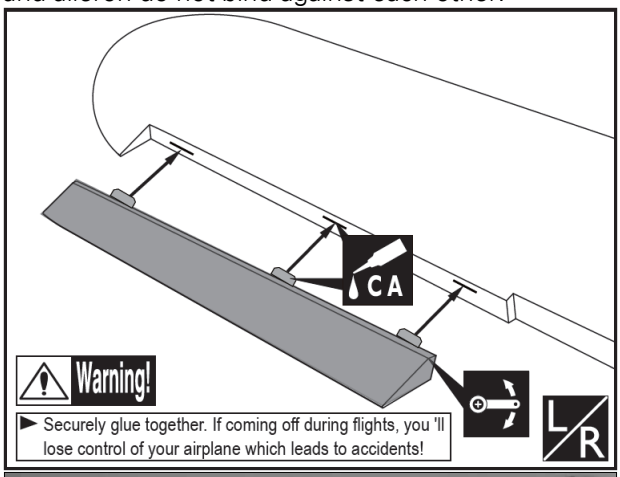
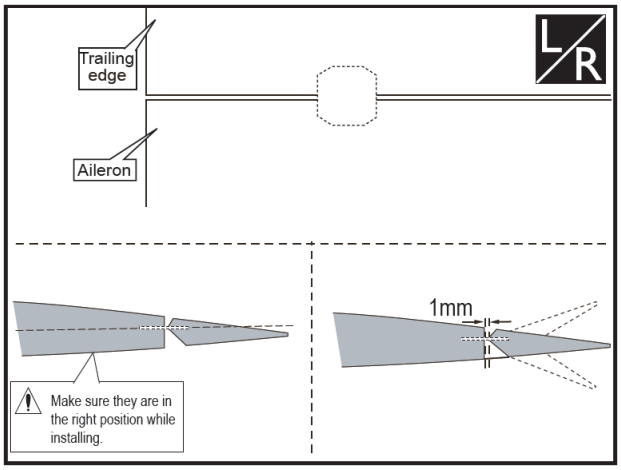
STEP 1 HINGING FLAPS AND AILERONS

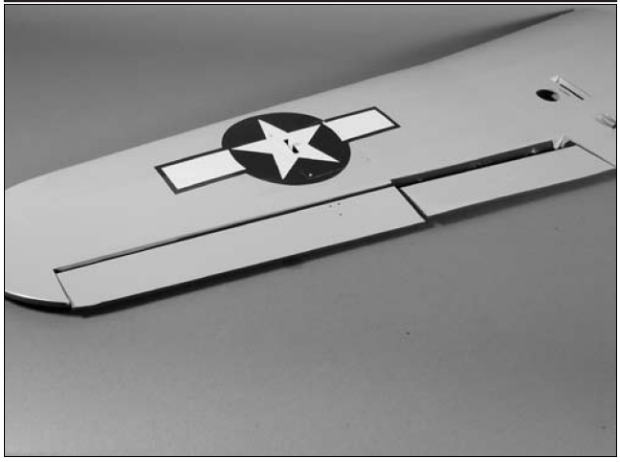
1. **Apply instant CA glue to aileron, outer flap, and pin hinge**
   Use a rotary tool and 1/16-inch (1.5mm) drill bit to drill a 1/2-inch (12mm) deep hole in the center of each hinge slot. This provides a tunnel allowing the glue used to secure the hinges to fully penetrate the hinge. Slide the hinges back into the ailerons and outer flaps and apply CA glue.



2. **Install the aileron and outer flaps into the main wing**
   Slide the aileron and outer flap into position on the wing. Make sure the inboard edge of the flap near the center of the wing, and the outer tip of the aileron near the wing tip do not bind against the wing. Also make sure the flap and aileron do not bind against each other.


CA
Warning!
Securely glue together. If coming off during flights, you 'll lose control of your airplane which leads to accidents!
L/R





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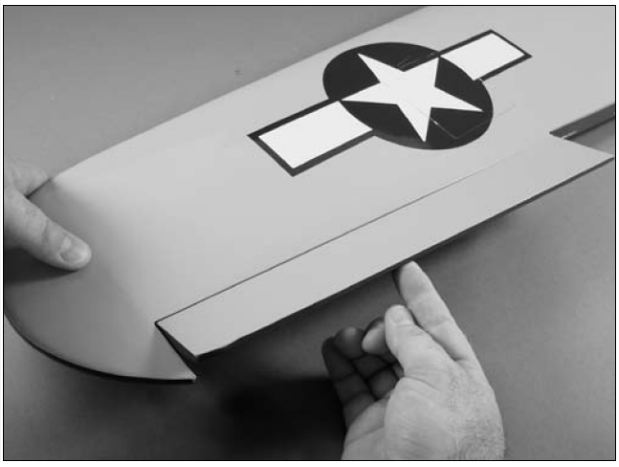
3. **Glue aileron and outer flaps into the main wing**
   Push the aileron/outer flap tight against the wing. Flex the aileron and apply enough thin CA to fully penetrate the hinge. Apply CA to both the top and bottom of the hinge. **Important:** Do not use accelerator when hinging. The CA must be allowed to soak into the hinge for the best possible bond between the hinge and surrounding wood.

4. **Check and break in aileron and outer flaps**
   After the CA has fully cured, gently pull on the wing and aileron to make sure the hinges are secure. If not, re-glue the hinges.

To break in the hinges, you will need to flex the aileron up and down a number of times.



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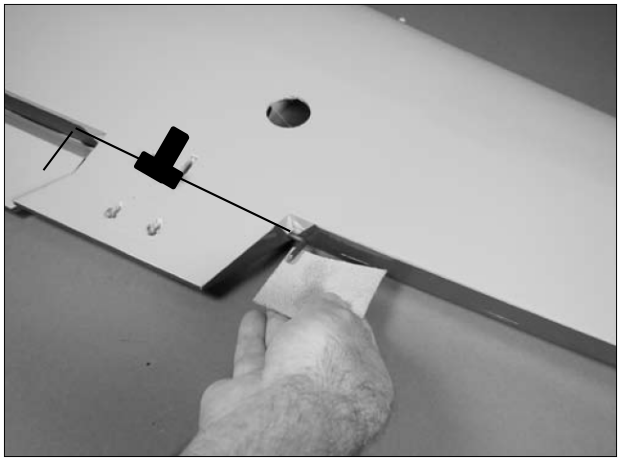
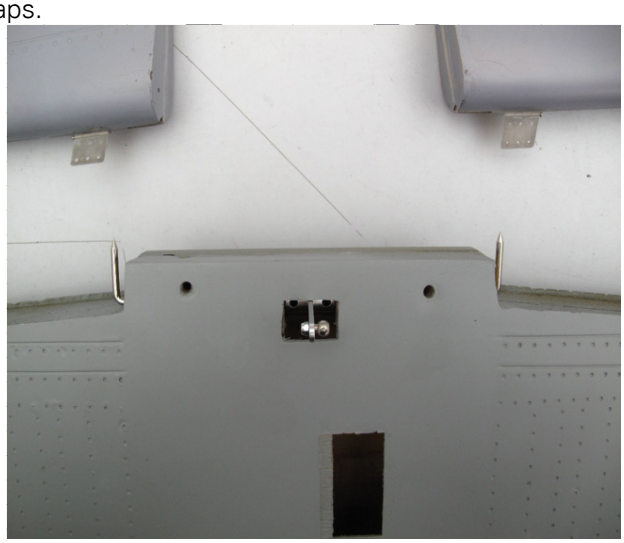
5. **Hinging the inner flaps**

   Use medium grit sandpaper to sand the tipped flap torque rod ends (11). Use rubbing alcohol and a paper towel to remove any debris from the torque rods. This will aid in strengthening the bond between the flap torque rod and flap. Enter both torque rods into the wing and join them with the T-Junction (13). Make sure to use Loctite to secure the set screws, and make sure that both torque rods are aligned in the same plane. Also make sure that the T-Junction is app. 90 degrees positioned relative to the torque rod plane to allow maximum flap travel before tightening the screws. Hinging the flaps follows the same procedure as the ailerons, except you will need to apply 30-minute epoxy to the torque rods that enter the flaps.





STEP 2 AILERON AND OUTER FLAP SERVO INSTALLATION (REPEAT 4 TIMES)

1. **Remove the servo cover from the wing.**

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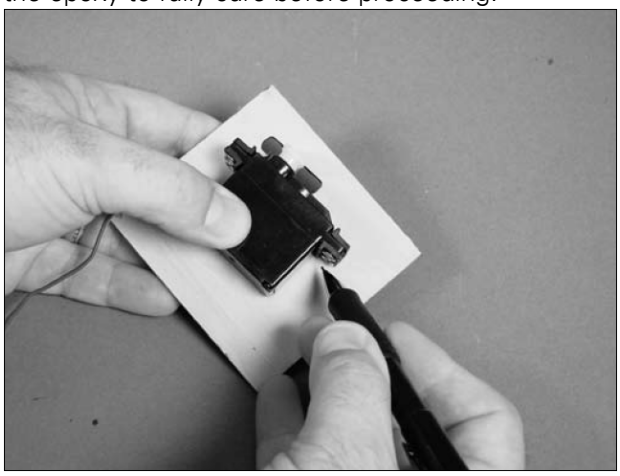
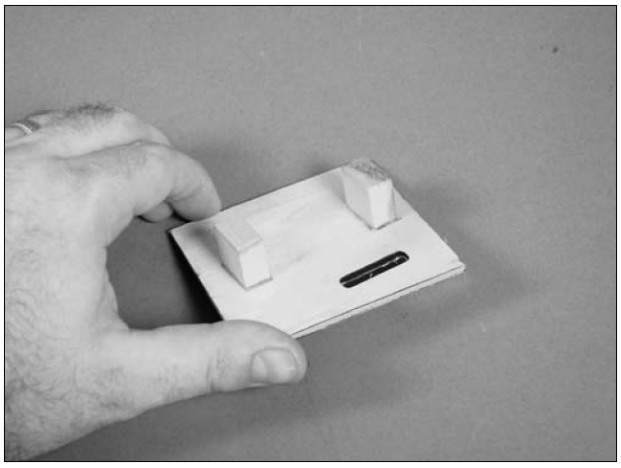
2. Mount the servo

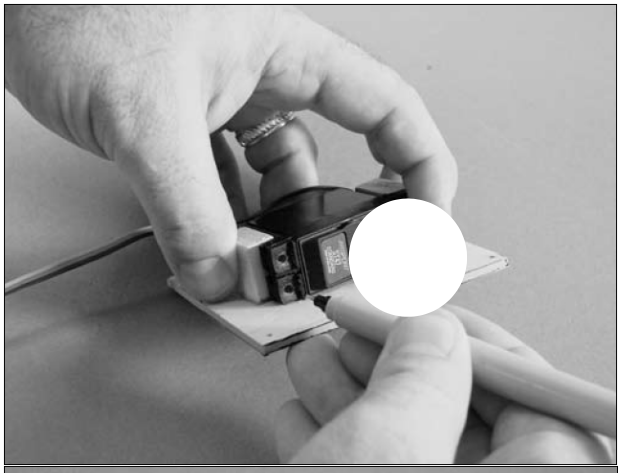
Position the aileron servo on the base plate (15) with the servo arm centered. Use a pencil to mark the cover where the flap servo is positioned. Use 30-minute epoxy to glue the servo mounting blocks (66) to the servo cover. Allow the epoxy to fully cure before proceeding.

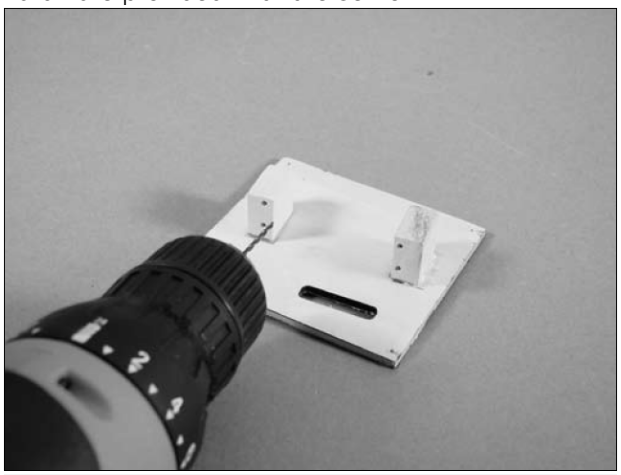


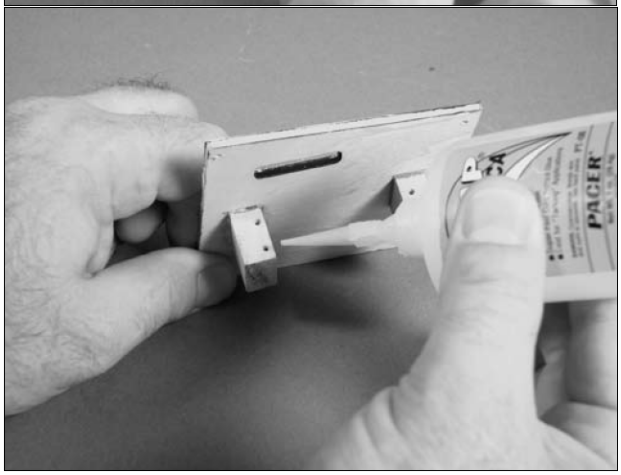


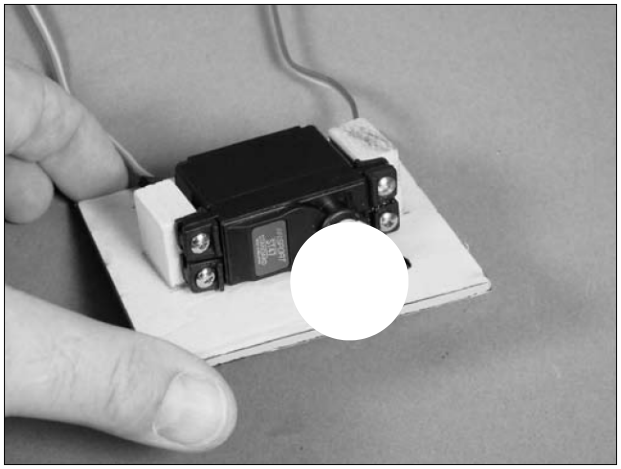
3. Mount the servo

Position the servo between the servo mounting blocks. Make sure the servo is not resting on the servo cover, which will transfer vibrations to the servo. Use a felt-tipped pen to mark the locations for the servo mounting screws. Use a drill and 1/16-inch (1.5mm) drill bit to drill the four holes for the servo mounting screws. Apply a few drops of thin CA into each of the holes to harden the surrounding wood to provide a stronger surface for the screws to bite into. Mount the servo to the blocks using the hardware provided with the servo.









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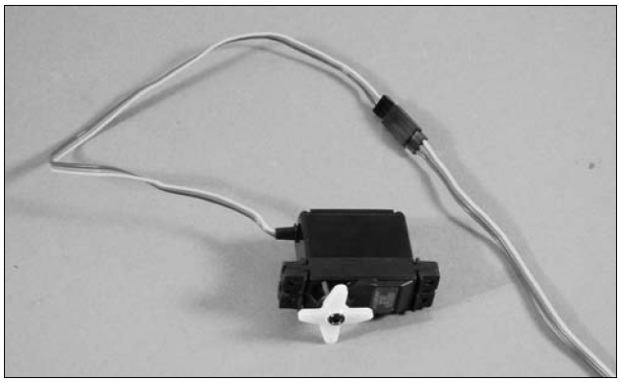
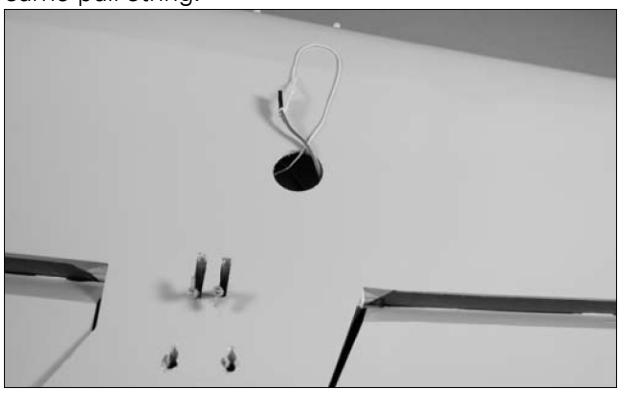
4. **Routing the wires**

Secure an 18-inch (457mm) servo extension to the servo lead for the aileron. Make sure to secure the servo lead to the extension using string or a commercially available connector to prevent them from becoming disconnected inside the wing. Tie a string that has needs to be installed inside the wing to the servo extension. Use the string to pull the servo leads through the wing and to the opening of the wing panel near the flap servo. You will pull the flap servo leads and the retract servo leads with this same pull string.





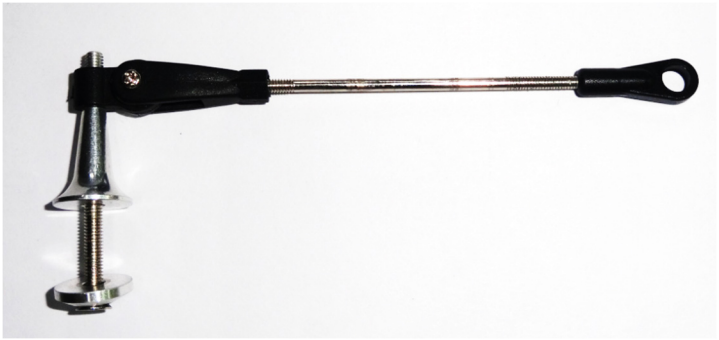
5. **Install the servo and the cover**

Install the servo mount plate into the wing using screws (42). Then install the servo cover on the wing.

STEP 3 AILERON AND OUTER FLAP LINKAGE INSTALLATION

1. **Pushrods**

Mount 4 ball links (1) onto one end of 4 pushrods (6). Mount the uniballs (2) onto all four servo horns. Thread the clevis (28) onto the other end of the pushrods. Thread the bearing holder (26) onto the control horn (23). Attach the ball link to the servo horn.



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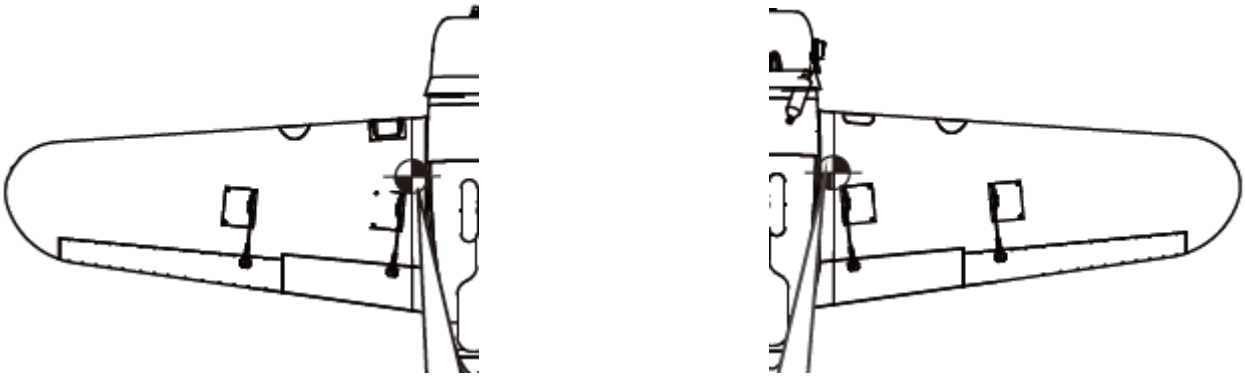
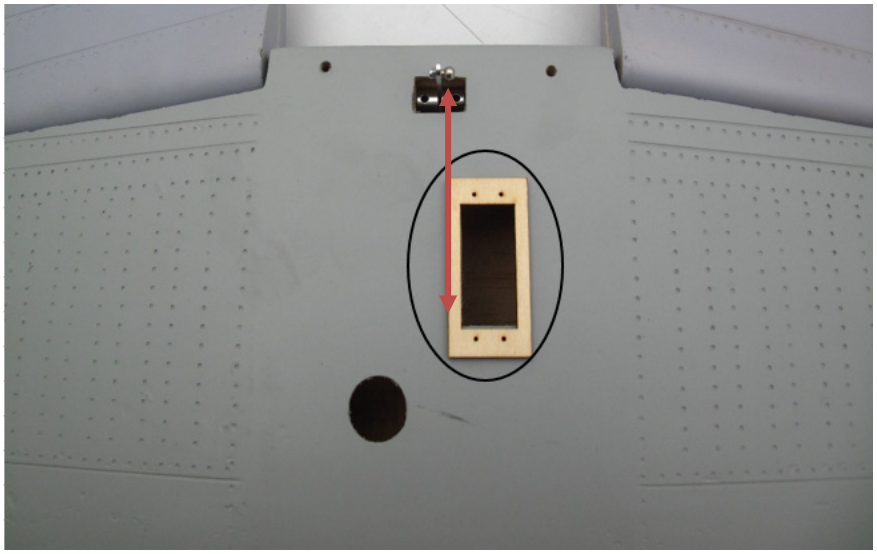
2. **Align Pushrods and mount control horn onto aileron/outer flap**
   Make sure that the servo is in center position and that the aileron / outer flap is in centered position, too. Align the pushrod perpendicular to the control surface, then mark the four spots to drill the holes for the retaining screw with a pencil. Drill a 3mm hole and mount the control rod with screw (24) and washer (21) onto the ailerons / outer flaps using Loctite.



STEP 4 INNER FLAP SERVO AND LINKAGE INSTALLATION

1. **Mount servo**
   Glue the servo mount (65) as shown onto the center main wing using 30 min epoxy. Mount the servo with the horn centered using the hardware provided with the servo. Then mount an uniball (2) onto the servo horn. Mount another uniball on the T-Junction using Loctite. Thread 2 ball links (1) onto the pushrod (7) and connect the servo horn with the T-Junction.



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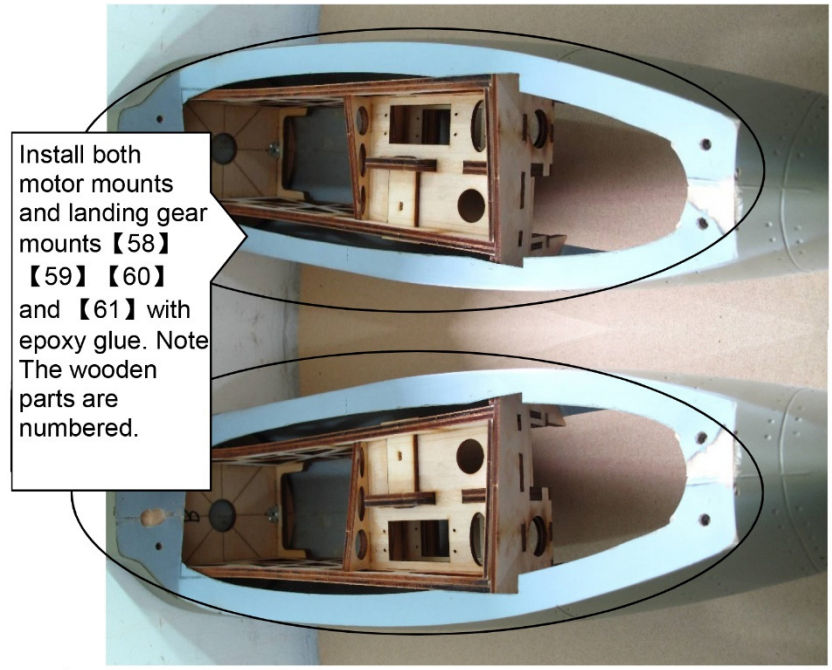
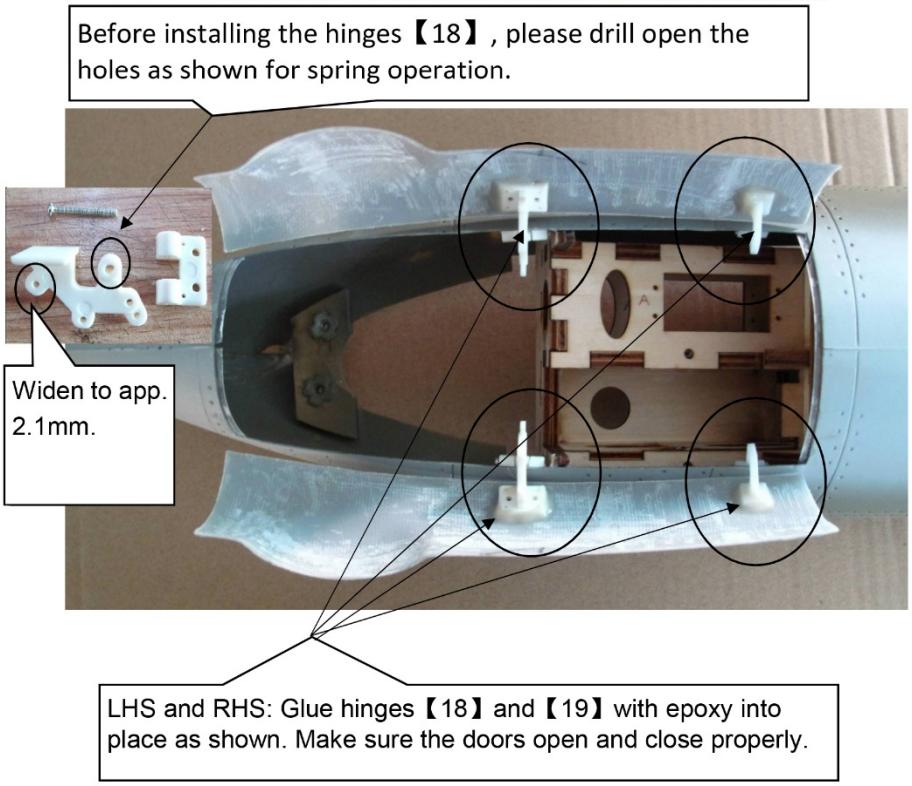
STEP 5 ELECTRIC RETRACT INSTALLATION

1. **Install Nacelle Framework and gear doors**
   Align both motor and landing gear mounts inside the nacelle and glue them in with 30 min. epoxy glue. The install the landing gear doors as shown.




Before installing the hinges【18】, please drill open the holes as shown for spring operation.
Widen to app. 2.1mm.
LHS and RHS: Glue hinges【18】and【19】with epoxy into place as shown. Make sure the doors open and close properly.

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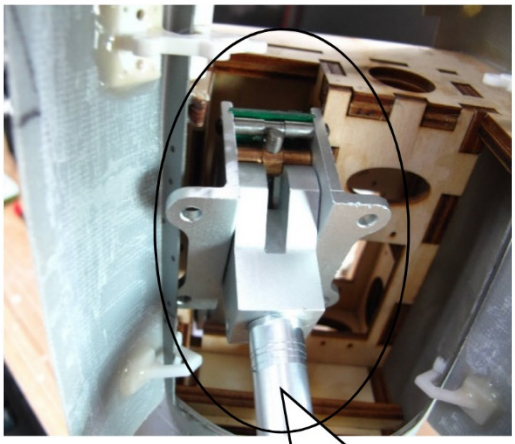
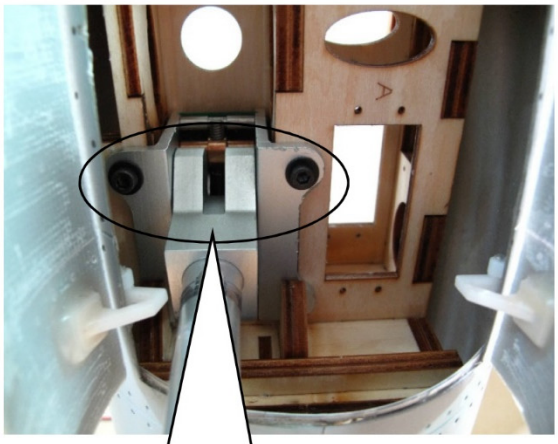
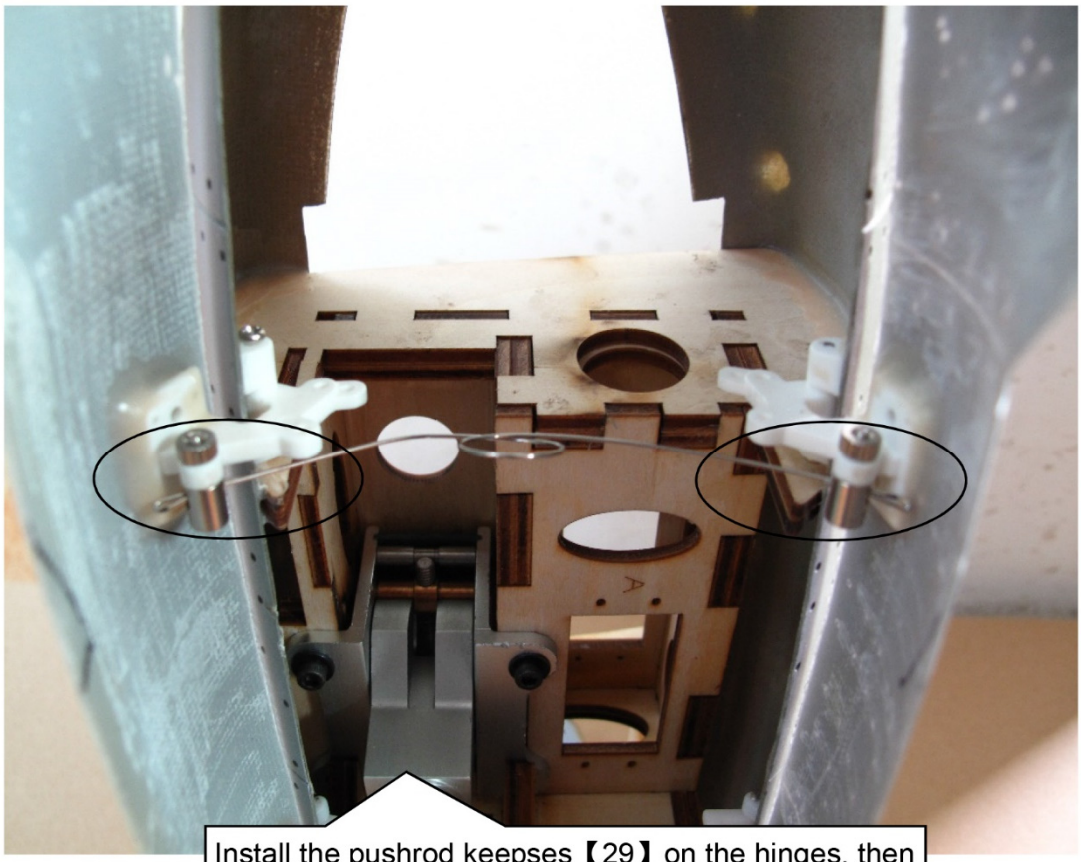
2. Install retract and landing gear



LHS and RHS: Install aft landing gears 【43】and【45】into the electric retracts, then insert them into the wooden



Align the retract and secure it with screws【37】and washers【31】as shown.



Install the pushrod keepses【29】on the hinges, then install the pre bend piano wire【46】as shown and tighten the screws. Note: Do not overtighten the keeper's holding screw, the keeper needs to be able

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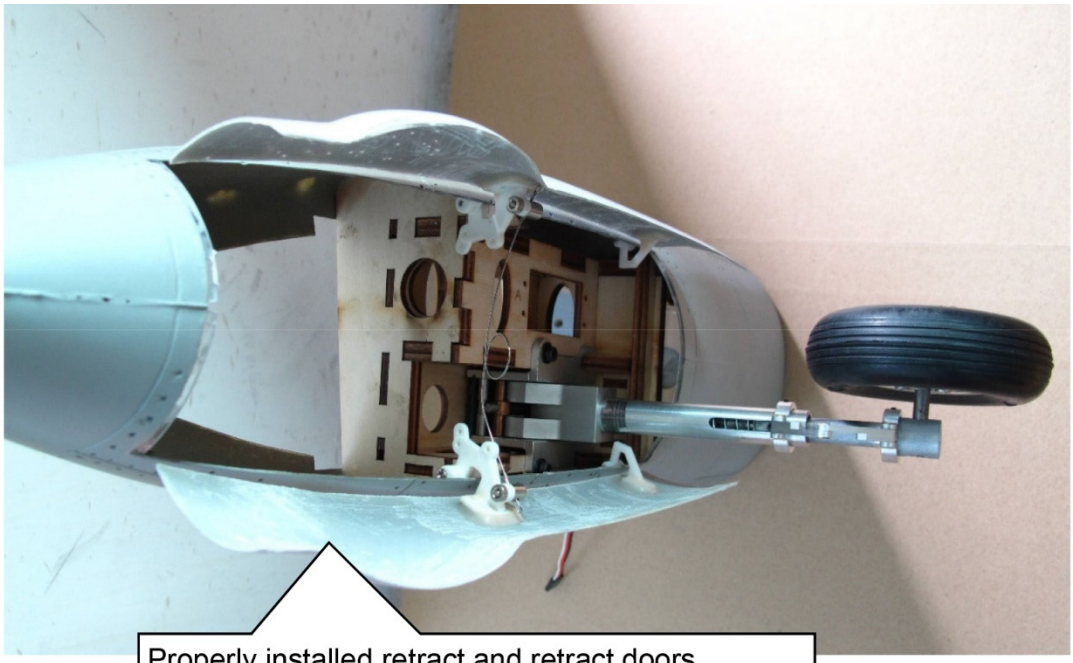

Properly installed retract and retract doors.

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3. Install front retract steering servo and gear door

Follow the steps as shown below.

Install the uniball【04】on the servos horn and secure with nut【02】. Then install ball links【01】on pushrod 【09】and assemble as shown. Make sure the servo horn is installed in center position before continuing.

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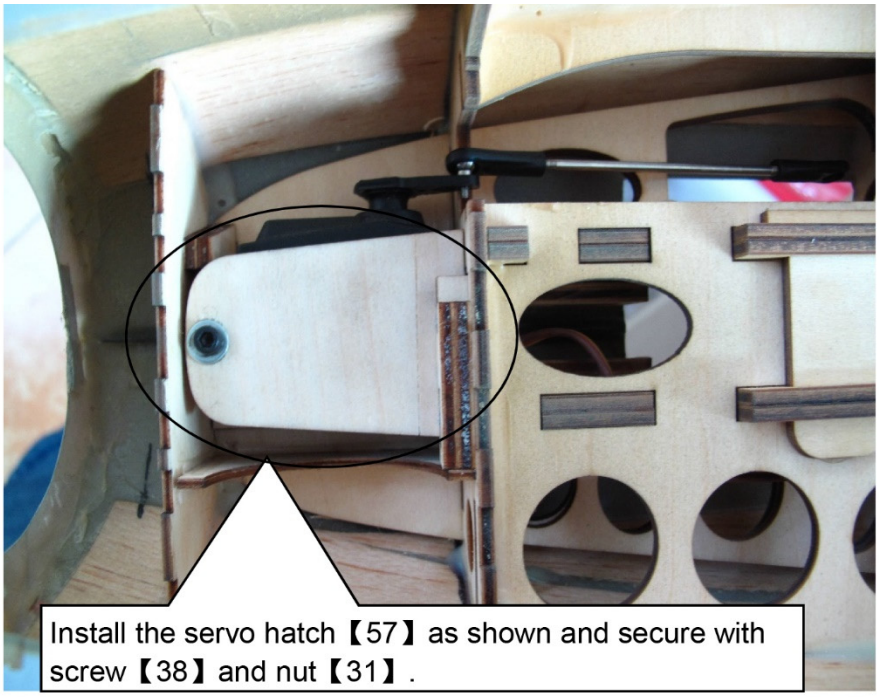
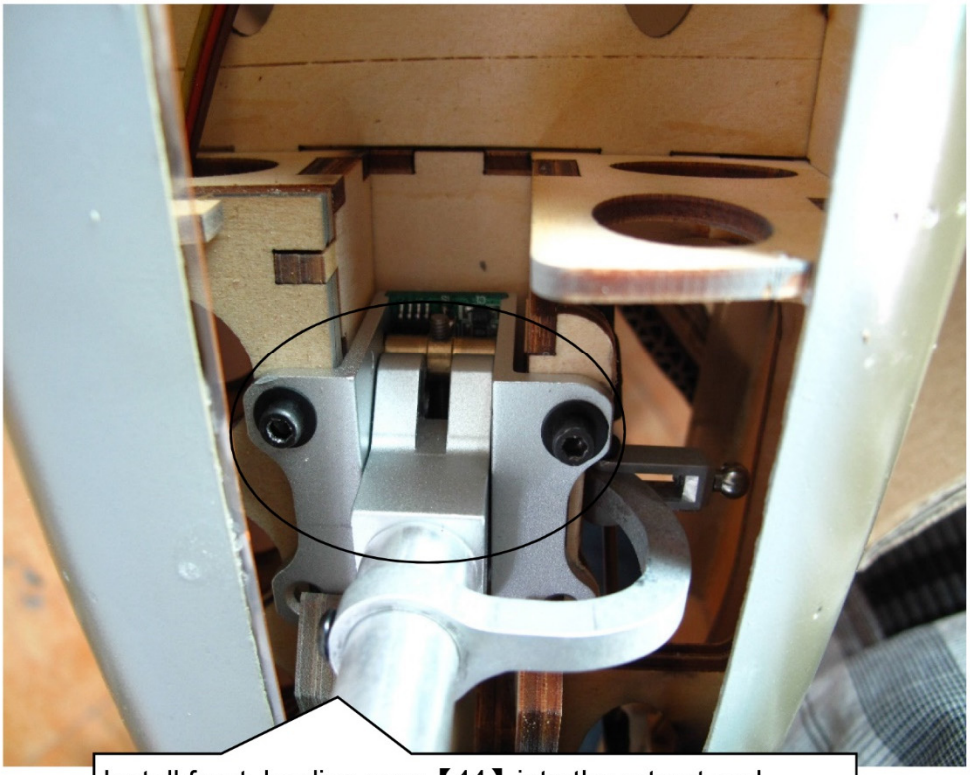


Install the servo hatch【57】as shown and secure with screw【38】and nut【31】.



Install front landing gear【44】into the retract and tighten the screw. Then insert the retract as shown into the woodwork and secrue with screw【37】and washer

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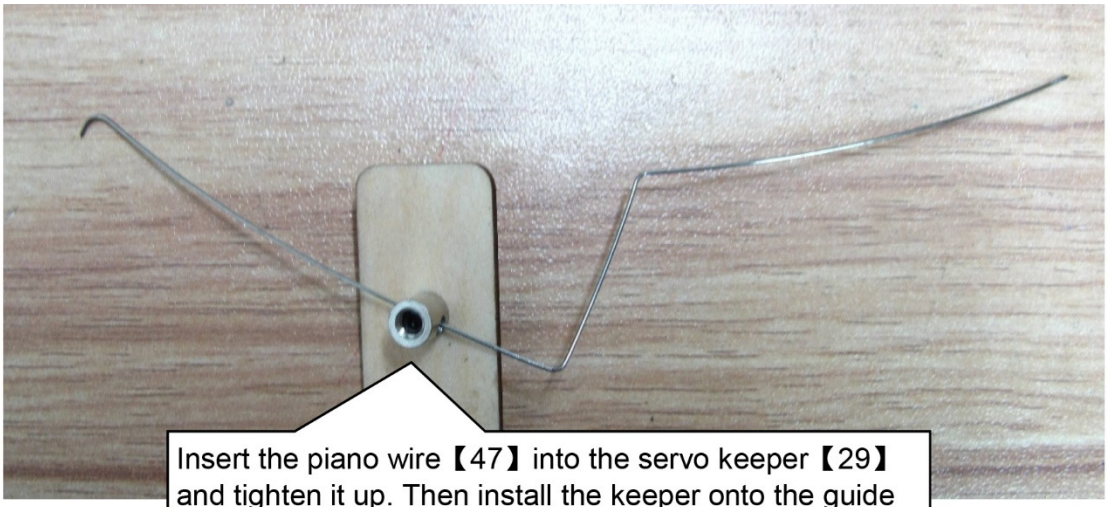
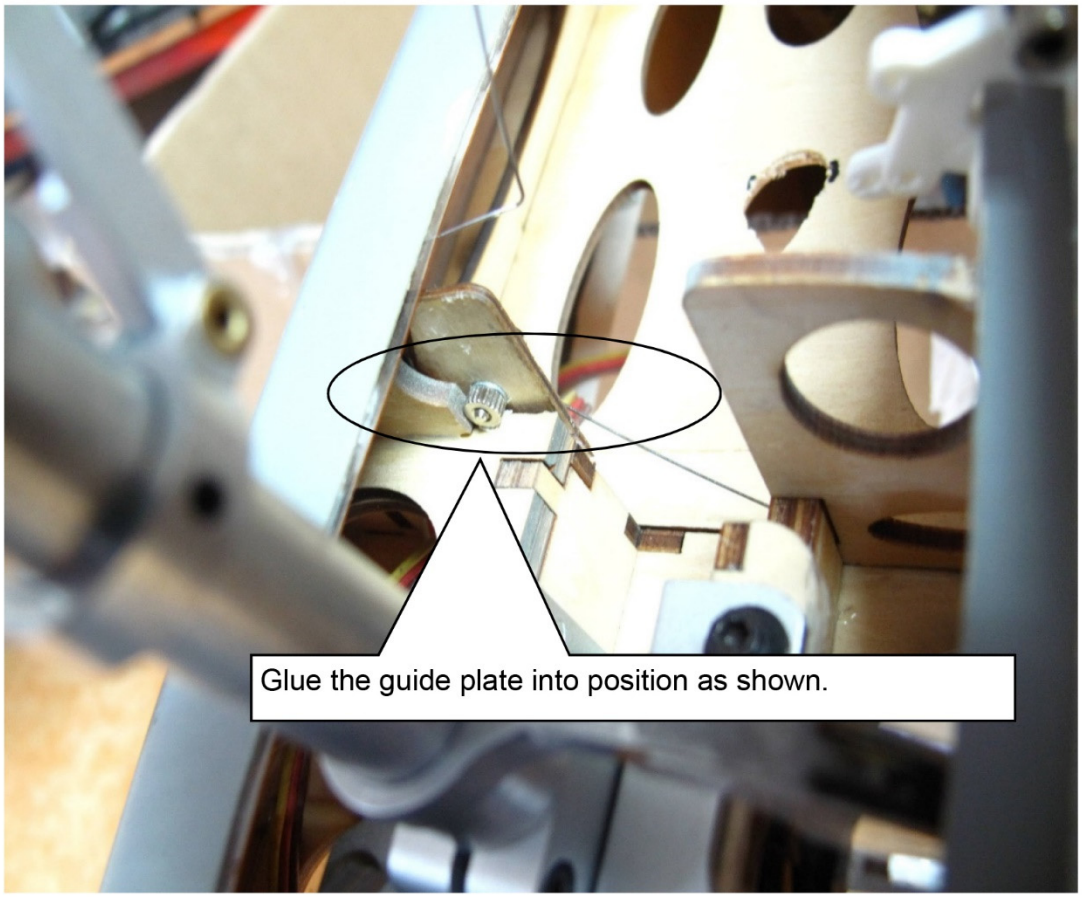


Insert the piano wire【47】into the servo keeper【29】and tighten it up. Then install the keeper onto the guide board【70】. Note: Do not overtighten the keeper's holding screw, the keeper needs to be able to swivel. Secure nut with locktite.



Glue the guide plate into position as shown.

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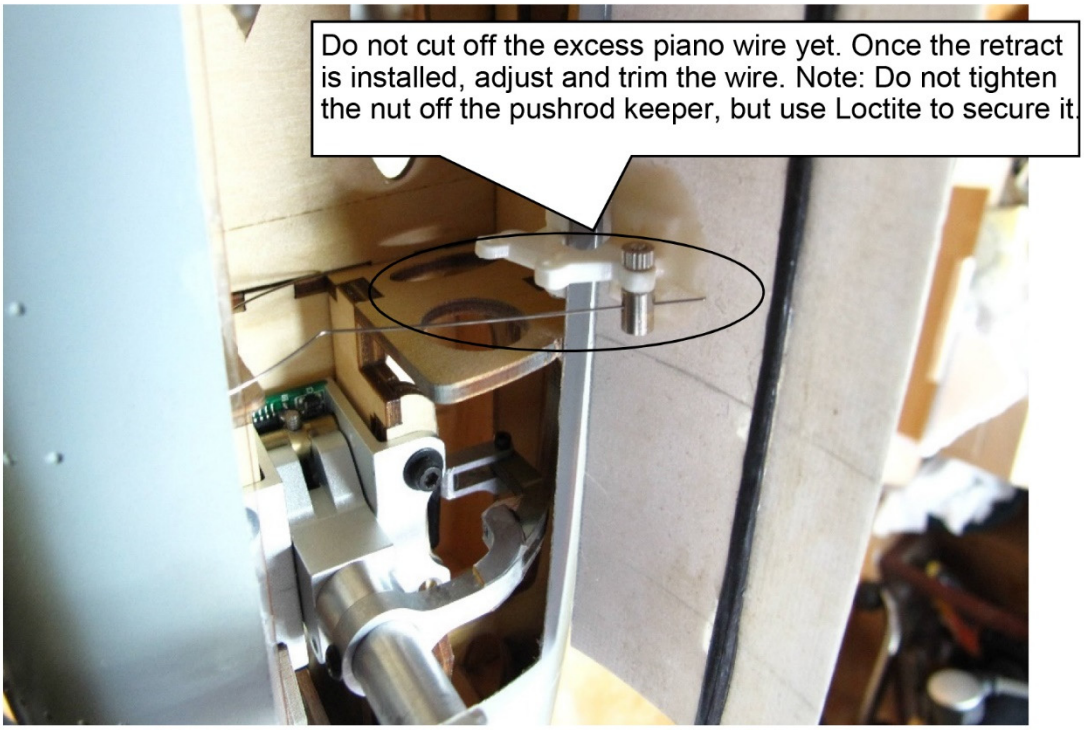
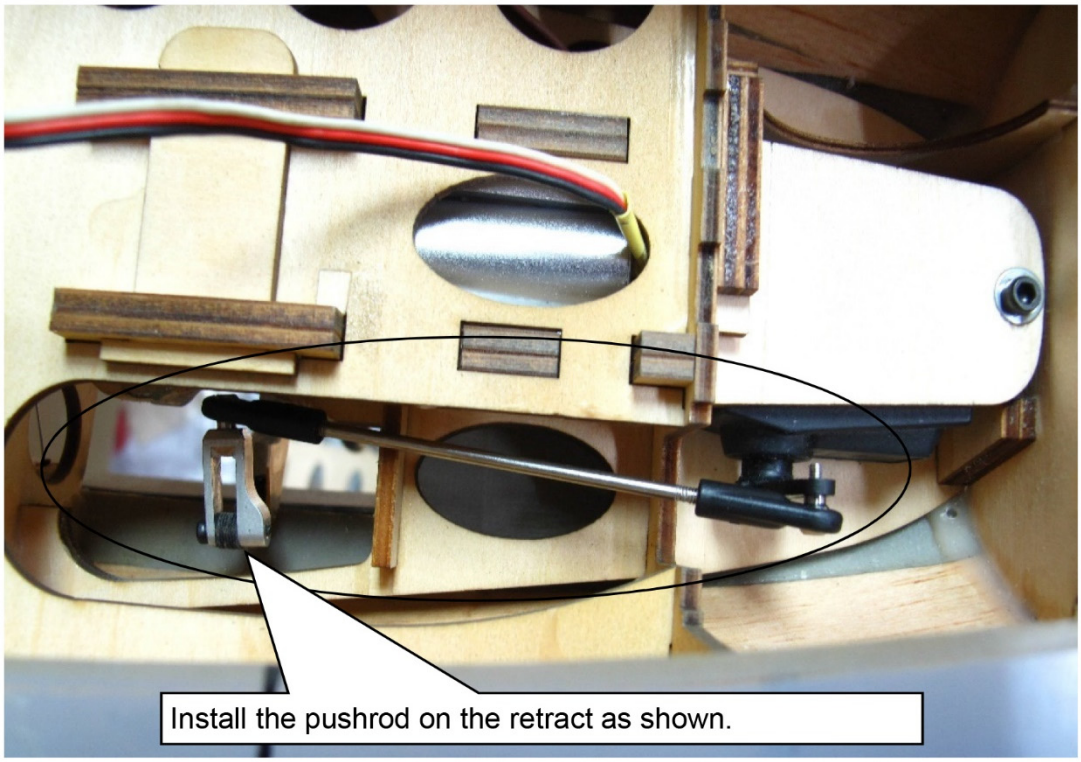

Do not cut off the excess piano wire yet. Once the retract is installed, adjust and trim the wire. Note: Do not tighten the nut off the pushrod keeper, but use Loctite to secure it.



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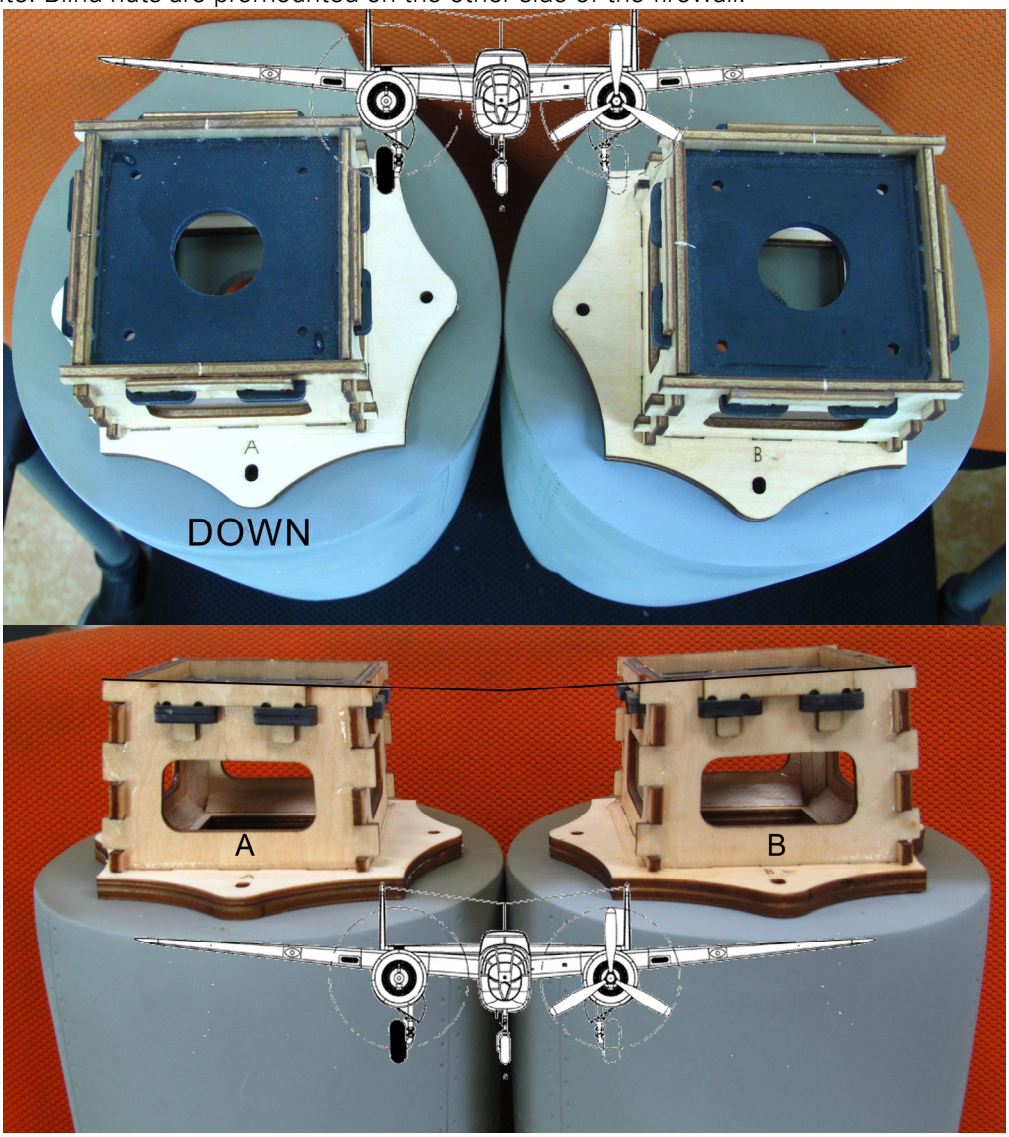
STEP 6 ELECTRIC MOTOR INSTALLATION AND ENGINE COWL MOUNT

1. **Mount Motors to nacelle**
   Mount the motors to the supplied motor holders (71 RHS marked A) and (72 LHS marked B) with the hardware supplied with the motors. Then mount the motor holders onto the nacelle's firewalls with screws (32) and washers (33) using loctite. Blind nuts are premounted on the other side of the firewall.



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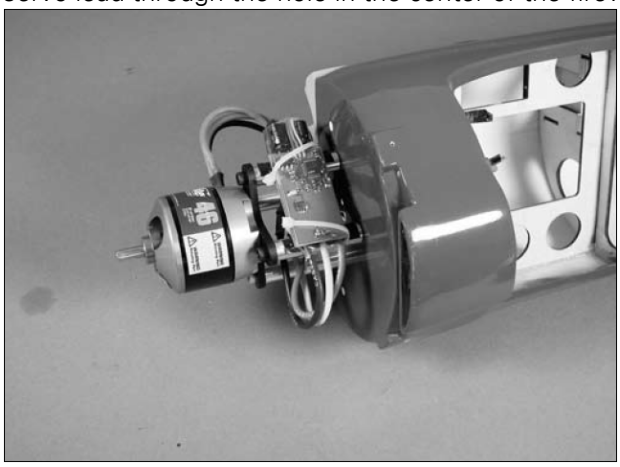
2. Install and Wire ESCs

Solder any necessary connector to the speed control. Connect the leads between the motor and speed control. Secure the speed controller to the motor mount using double-sided tape and tie wraps. Route the power lead and servo lead through the hole in the center of the firewall.



3. Install engine cowl

After installing the engine cowl holders (68) onto the firewall, holes need to be drilled into the cowl so that the cowl can be secured with screws (42).

Install the supports【68】into the enginge cowl as shown. Do not glue them in, this connection is screw mount!

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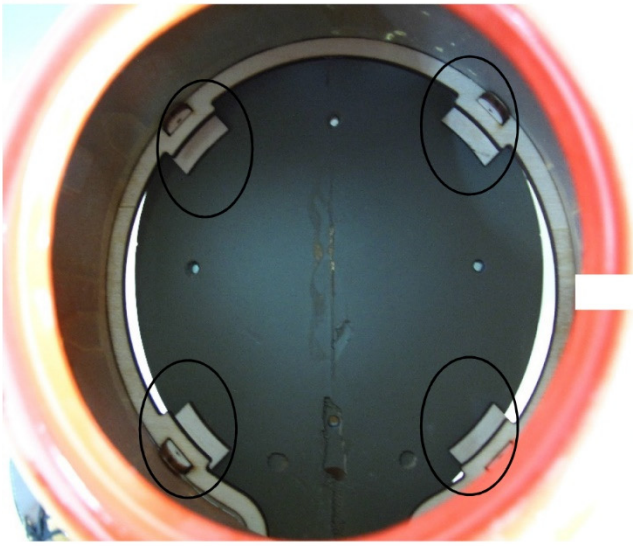
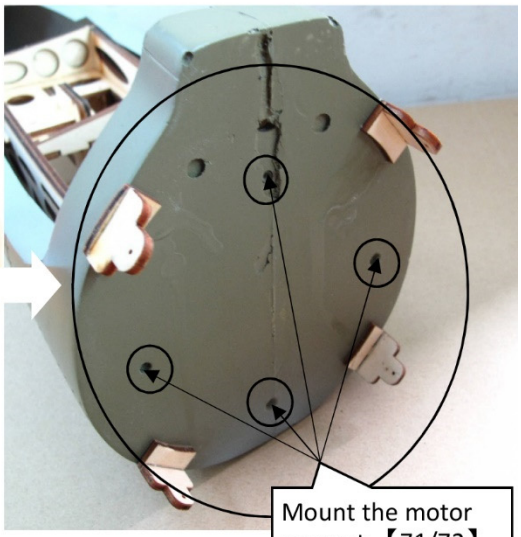
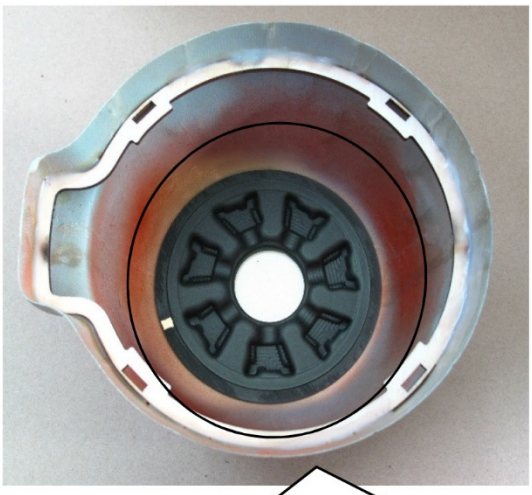




Mount the motor support 【71/72】 using screws【36】

Using the cowl as a guide, glue the four holders onto the nacelles as shown. Repeat on both sides.



Glue the dummy engine 【52】into the engine cowl as shown.

Finally mount the cowl using the screws (42) onto the nacelle.

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STEP 7 ENGINE NACELLE INSTALLATION

1. **Prepare wiring**
   Prior to installation, pull the power wires, the throttle servo extension and the retract servo extension through the wing using a string and out of the center hole. The engine nacelle will need to be close to the wing for the extension from the throttle servo (speed control) to reach the opening in the wing. Once the extensions have been pulled through the wing, use tape to keep them from falling back into the wing.

2. **Attach engine nacelle**
   Attach the engine nacelle to the wing using two screws (35) and washers (31) using loctite. The front section of the nacelle has preinstalled dowels, these must engage before the screws are used to tighten the nacelle to the wing.

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STEP 8 WING INSTALLATION

1. **Mount wing tubes**
   Slide the wing tube into one of the wing panels. Slide the remaining panel onto the wing tube (48). The panels should fit tight against each other.

2. **Secure the wing tubes**
   Drill four 1mm holes into the downward wing surface, exactly where the wing tube end's are located. Then mount four self tapping screws (40) into the wing and the tube to secure them.

3. Install main wing onto fuselage
   Slide the two front dowel pins into the holes on the fuselage, then use a hex driver to fasten two socket head screws (33) and washers (30) using Loctite, securing the main wing to the fuselage.

STEP 9 RUDDER AND ELEVATOR INSTALLATION

1. **Mount servos**
   Mounting the rudder servo follows the same procedure as mounting the aileron servo (Section 2: Aileron Servo Installation, Steps 1 through 5, using servo holder plate (16) and mounting blocks (56) instead). Use a 180 degree servo arm and remove the excess arm using side cutters. Simply follow those steps to mount the rudder servo to the rudder servo cover.

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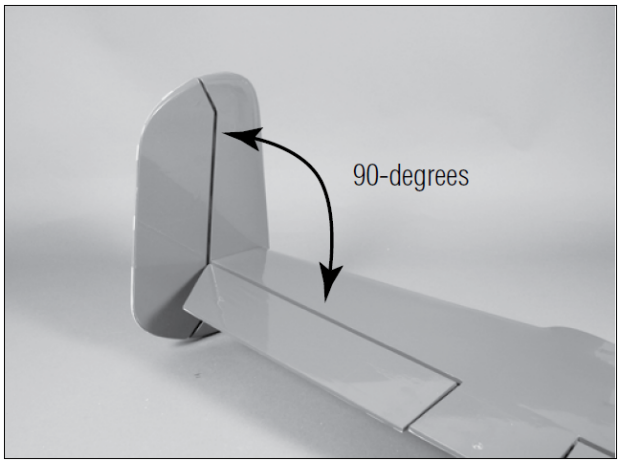
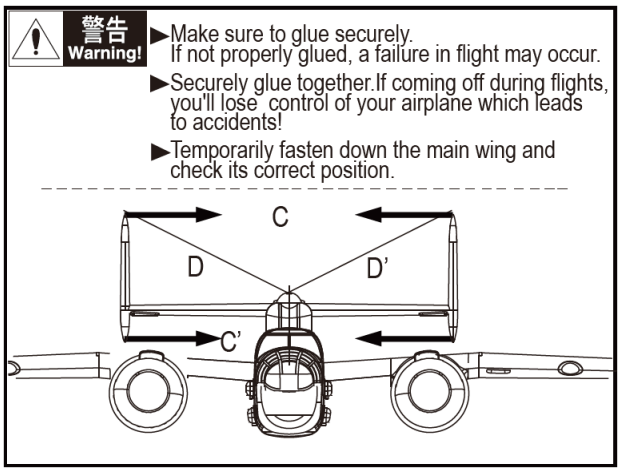
2. Mount rudder fins

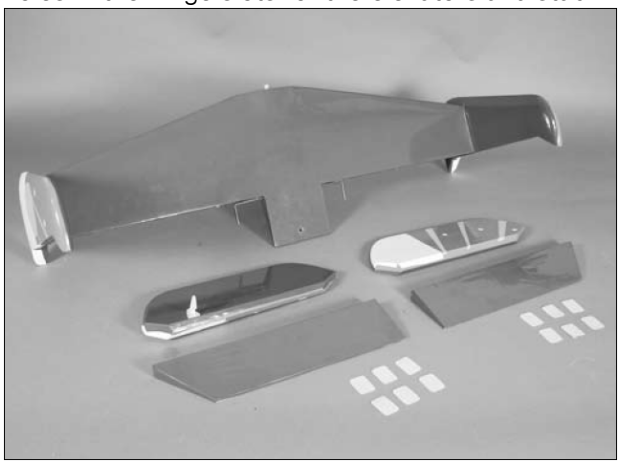
Use 30-minute epoxy to attach the fin to the stabilizer. Note: Make sure the vertical fins remain in alignment while the epoxy cures.

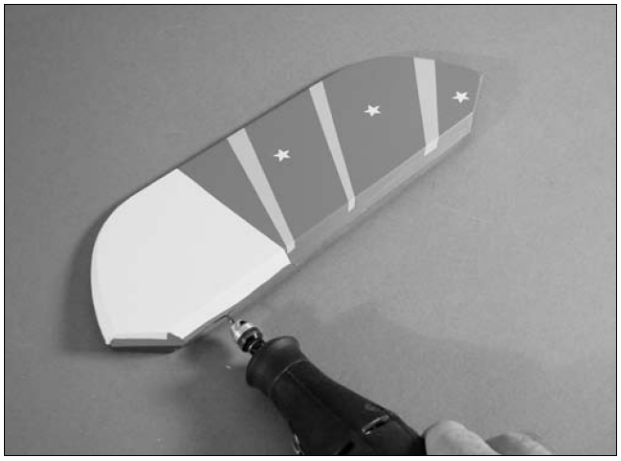



警告
Warning!
►Make sure to glue securely.
If not properly glued, a failure in flight may occur.
►Securely glue together.If coming off during flights, you'll lose control of your airplane which leads to accidents!
►Temporarily fasten down the main wing and check its correct position.
C
D
D'
C'

3. Prepare Rudder

Remove the elevators and rudders from the stabilizer and fins and set aside the CA hinges. Use a rotary tool and 1/16-inch (1.5mm) drill bit to drill a 1/2-inch (12mm) deep hole in the center of each hinge slot for the rudders and fins. This provides a tunnel allowing the glue used to secure the hinges to fully penetrate the hinge. Note: Drill the holes in the hinge slots for the elevators and stabilizer at this time as well.





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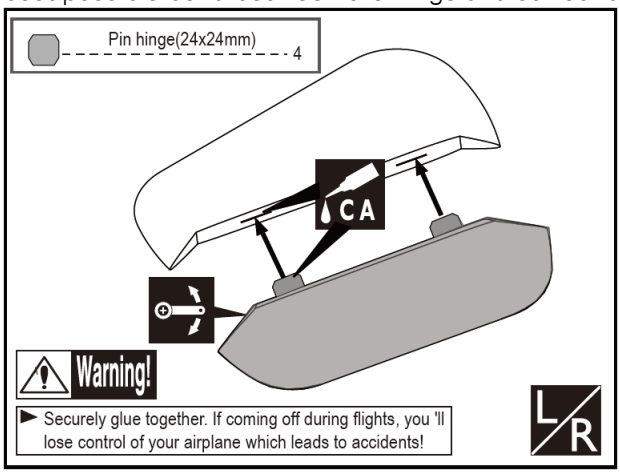
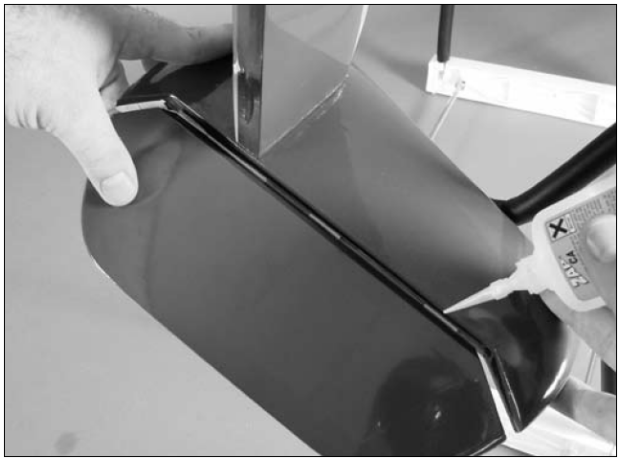
4. Mount rudder

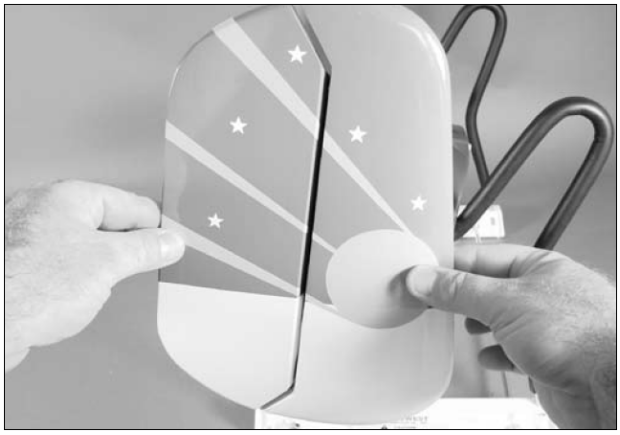
Slide the rudder into position on the fin. Make sure the rudder can move without binding against the fin at the top and bottom. Flex the rudder and apply enough thin CA to fully penetrate the hinge. Apply CA to both sides of the hinge. **Important**: Do not use accelerator when hinging. The CA must be allowed to soak into the hinge for the best possible bond between the hinge and surrounding wood.

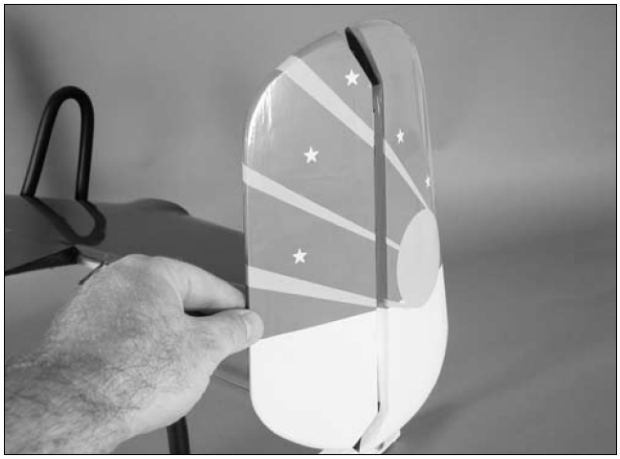

Pin hinge(24x24mm)
4
CA
Warning!
Securely glue together. If coming off during flights, you 'll lose control of your airplane which leads to accidents!
L/R



5. Check and break in hinges

After the CA has fully cured, gently pull on the rudder and fin to make sure the hinges are secure. If not, re-glue the hinges. To break in the hinges, you will need to flex the rudder back and forth a number of times.





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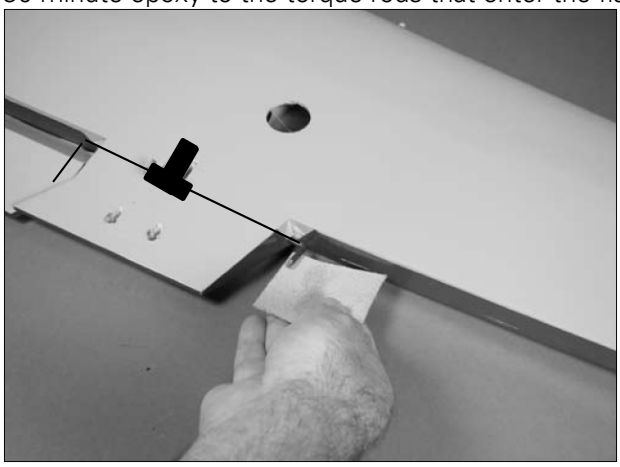
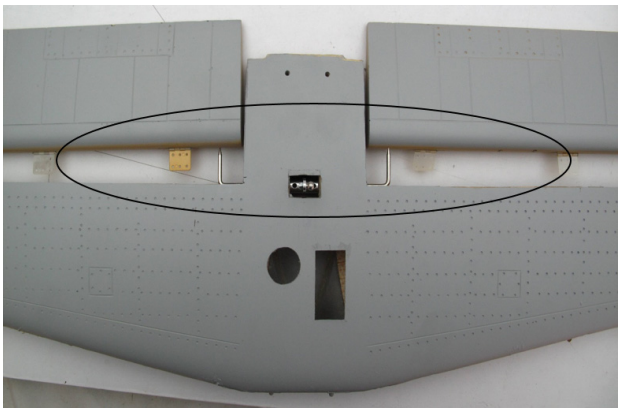
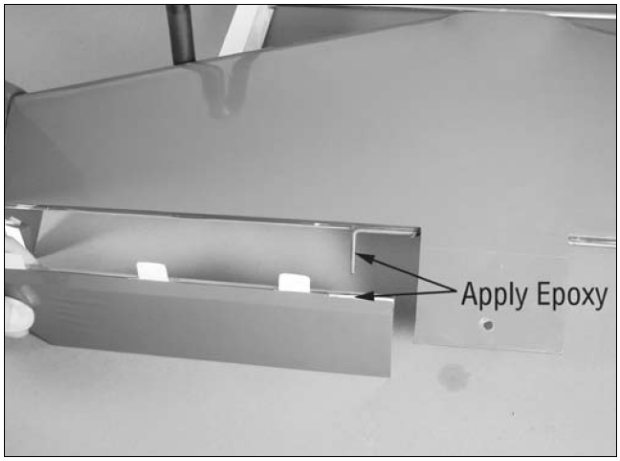
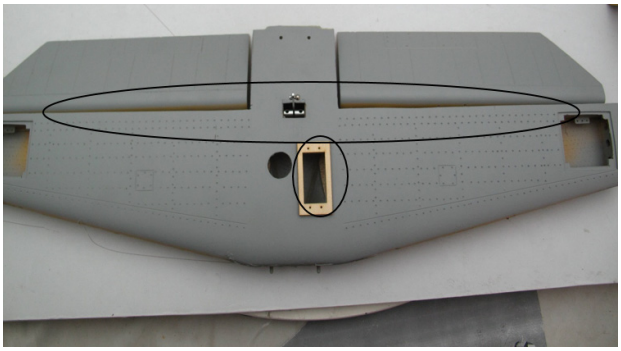
6. **Mount elevator**
   Use medium grit sandpaper to sand the tipped flap torque rod ends (12). Use rubbing alcohol and a paper towel to remove any debris from the torque rods. This will aid in strengthening the bond between the flap torque rod and flap. Enter both torque rods into the wing and join them with the T-Junction (13). Make sure to use Loctite to secure the set screws, and make sure that both torque rods are aligned in the same plane. Also make sure that the T-Junction is app. 90 degrees positioned relative to the torque rod plane to allow maximum flap travel before tightening the screws. Hinging the flaps follows the same procedure as the ailerons, except you will need to apply 30-minute epoxy to the torque rods that enter the flaps.









STEP 10 RUDDER AND ELEVATOR SERVO INSTALLATION

1. **Mount elevator servo**
   Glue the servo mount (65) as shown onto the center main wing using 30 min epoxy. Mount the servo with the horn centered using the hardware provided with the servo. Then mount an uniball (2) onto the servo horn. Mount another uniball on the T-Junction using Loctite. Thread 2 ball links (1) onto the pushrod (7) and connect the servo horn with the T-Junction.

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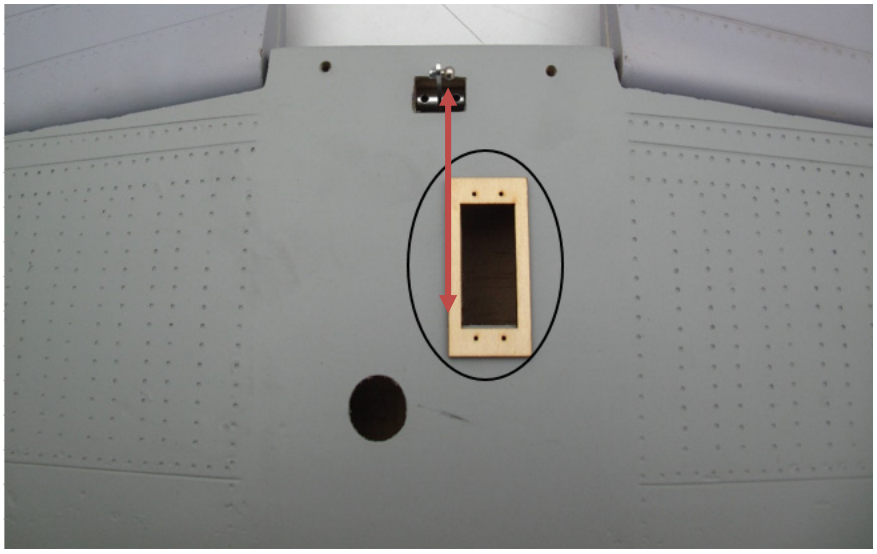
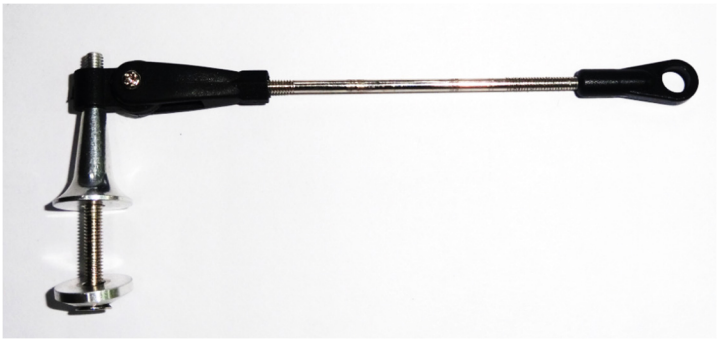


2. **Pushrods**
   Mount 2 ball links (1) onto one end of 2 pushrods (6). Mount the uniballs (2) onto the two servo horns. Thread the clevis (28) onto the other end of the pushrods. Thread the bearing holder (26) onto the control horn (23). Attach the ball link to the servo horn.



3. **Align Pushrods and mount control horn onto aileron/outer flap**
   Make sure that the servo is in center position and that the rudder is in centered position, too. Position the control horn on the fin so it won't interfere with the elevator, and so it is in alignment with the rudder servo arm. Mark the location for the mounting screw on the rudder with a pencil. Drill a 3mm hole and mount the control rod with screw (24) and washer (21) onto the rudders using Loctite.

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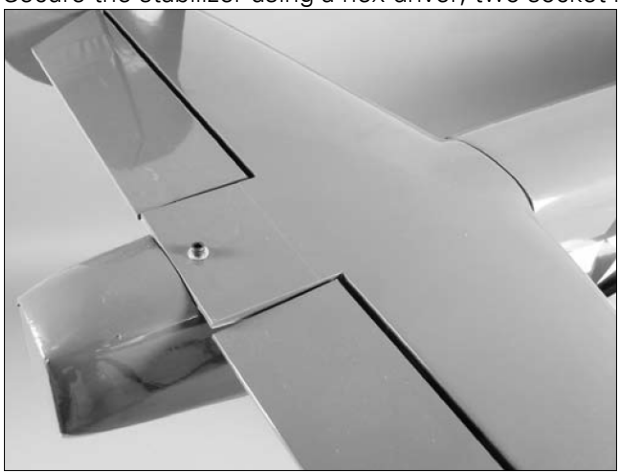
STEP 11 TAIL SECTION INSTALLATION

1. **Servo wires**
   Connect the Y-harness and 24-inch (610mm) servo extension to the rudder servos and pass them into the radio compartment. Make sure to secure all connections so they will not become unplugged inside the fuselage.

2. **Secure stabilizer**
   Secure the stabilizer using a hex driver, two socket head screws (34) and washers (31) using loctite.



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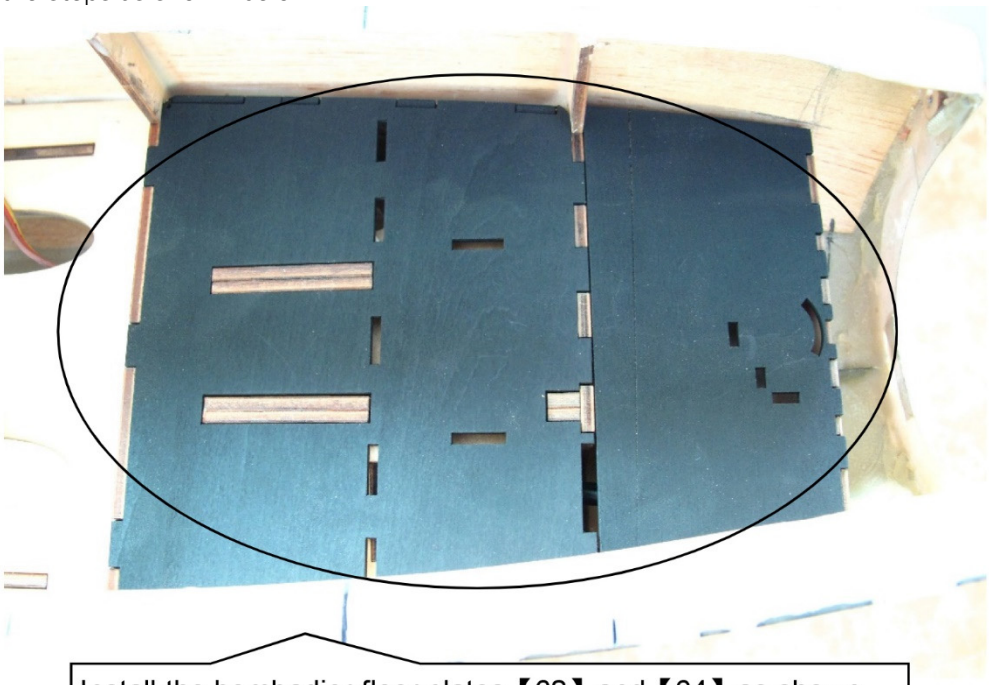
STEP 12 SCALE ACCESSORIES

1. **Bombardiers cockpit**
   Follow the steps as shown below.



Install the bombadier floor plates【62】and【64】as shown.

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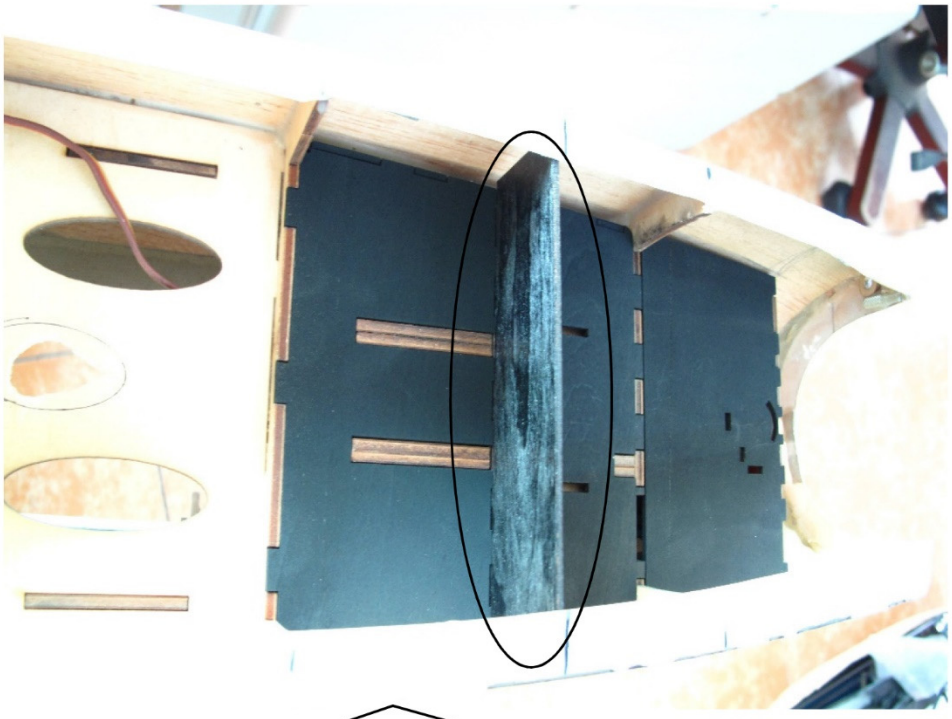
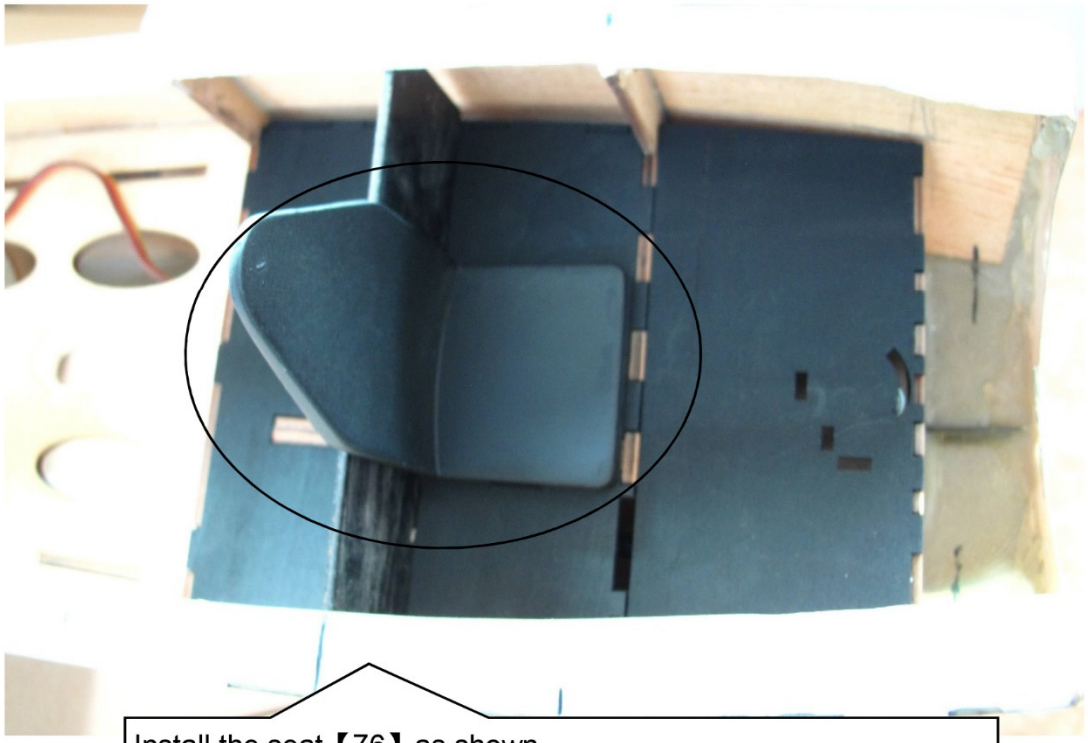


Install the separator plate【63】as shown.



Install the seat【76】as shown.

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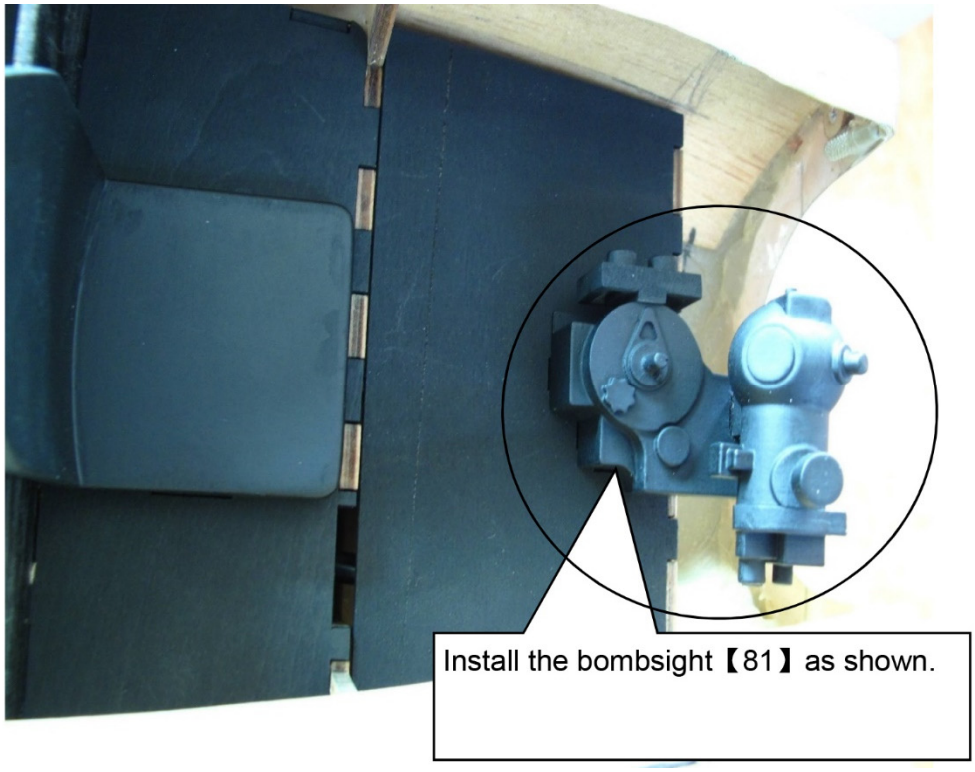

2. Cockpit

Follow the steps as shown below.

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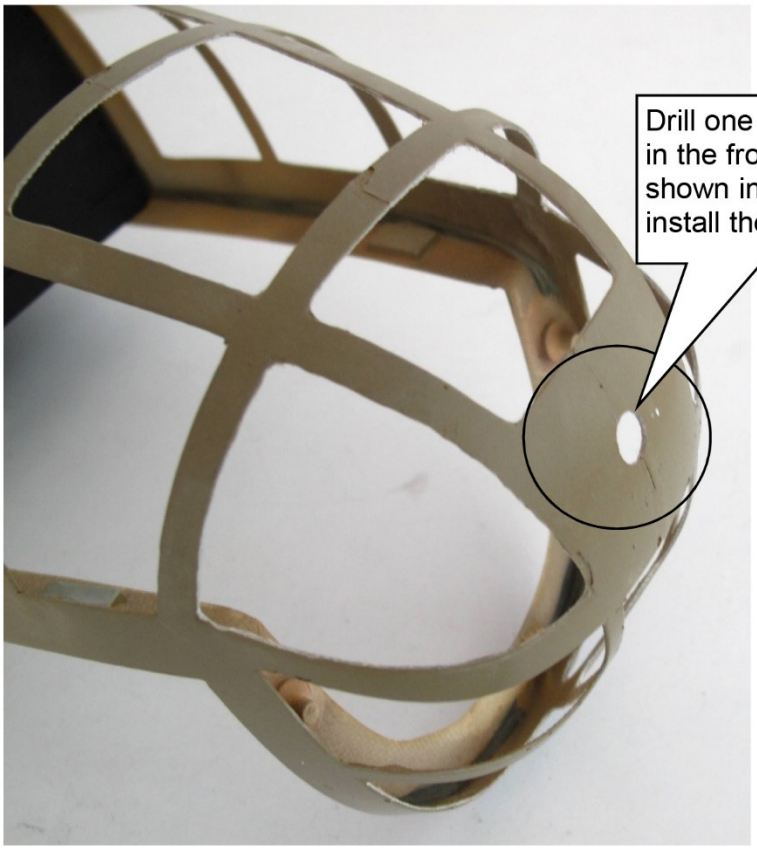

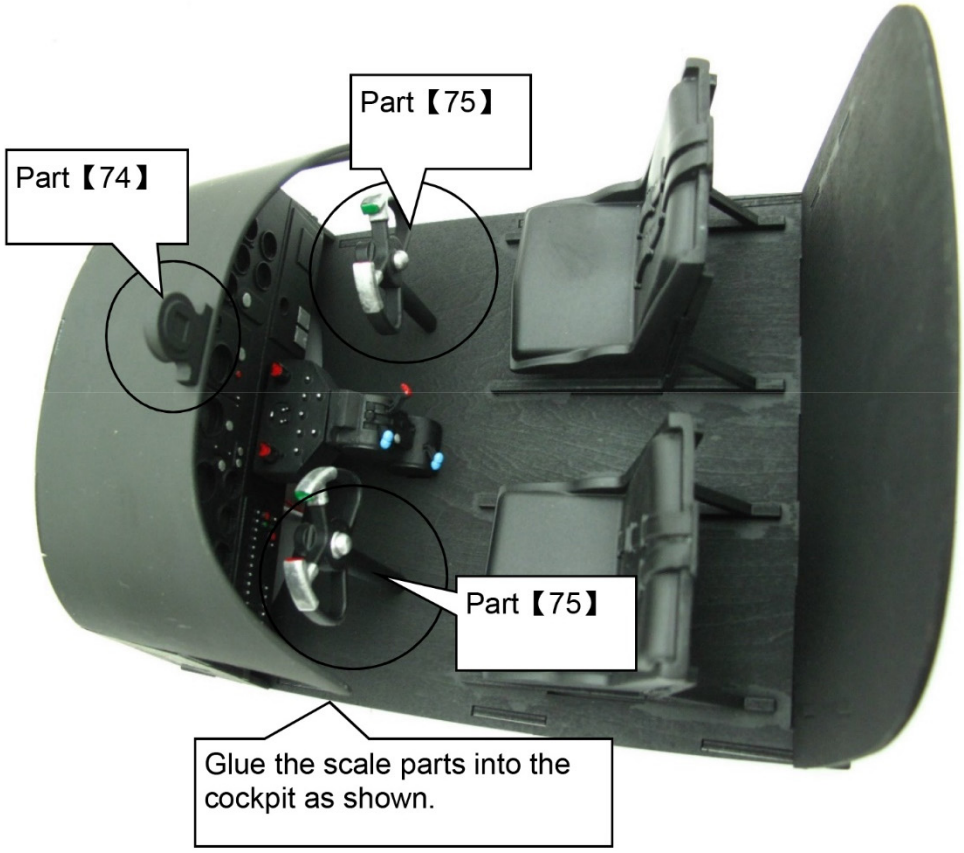

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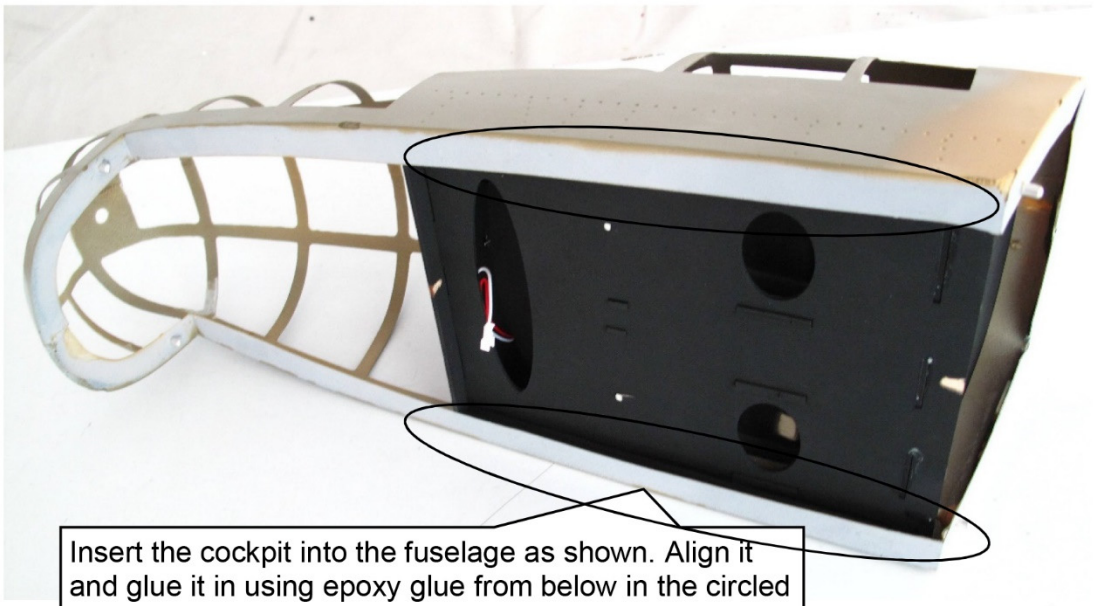

Insert the cockpit into the fuselage as shown. Align it and glue it in using epoxy glue from below in the circled

View of properly installed cockpit.

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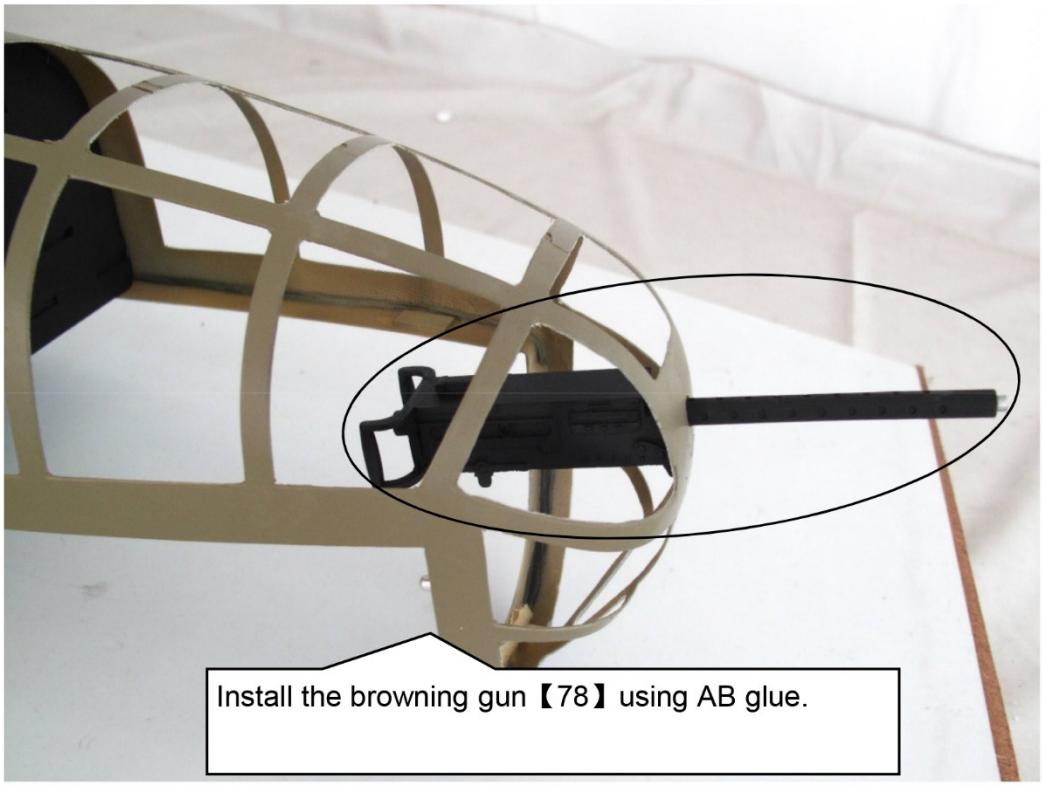

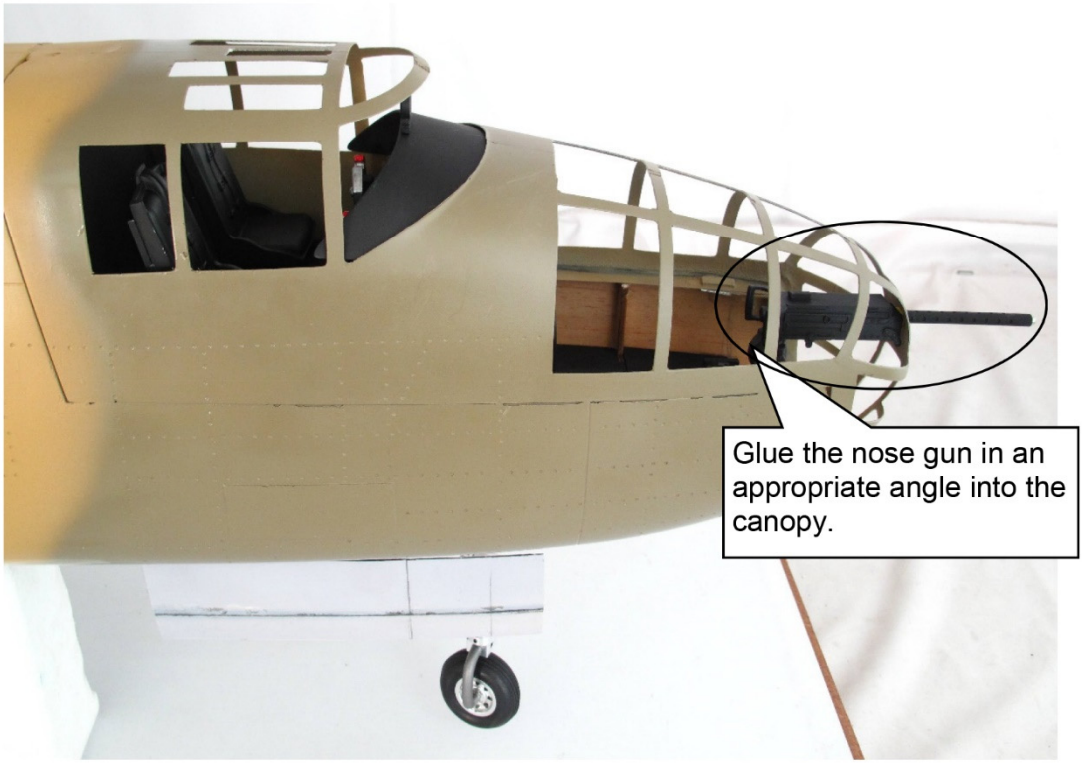

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3. Top gunner

Follow the steps as shown below.

Install the top gun base【79】on the fuselage as shown.

Put the top dome【54】on, but don't glue it in place yet. Check and eventually adjust the barrel throughholes.

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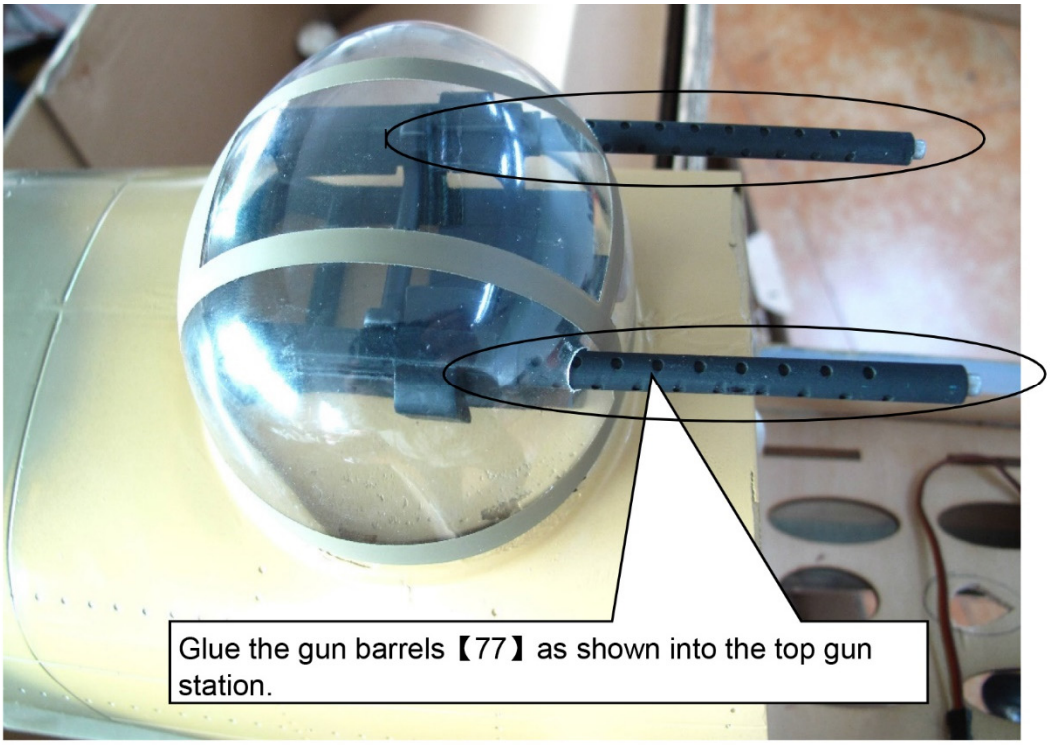
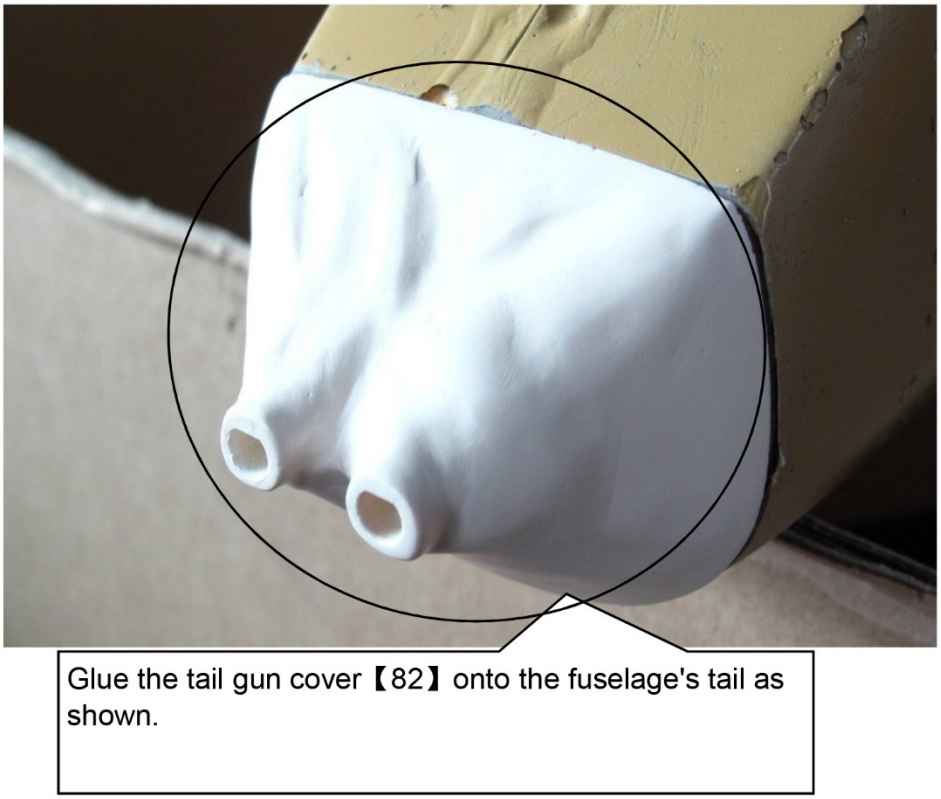


4. Tail gunner

Follow the steps as shown below.



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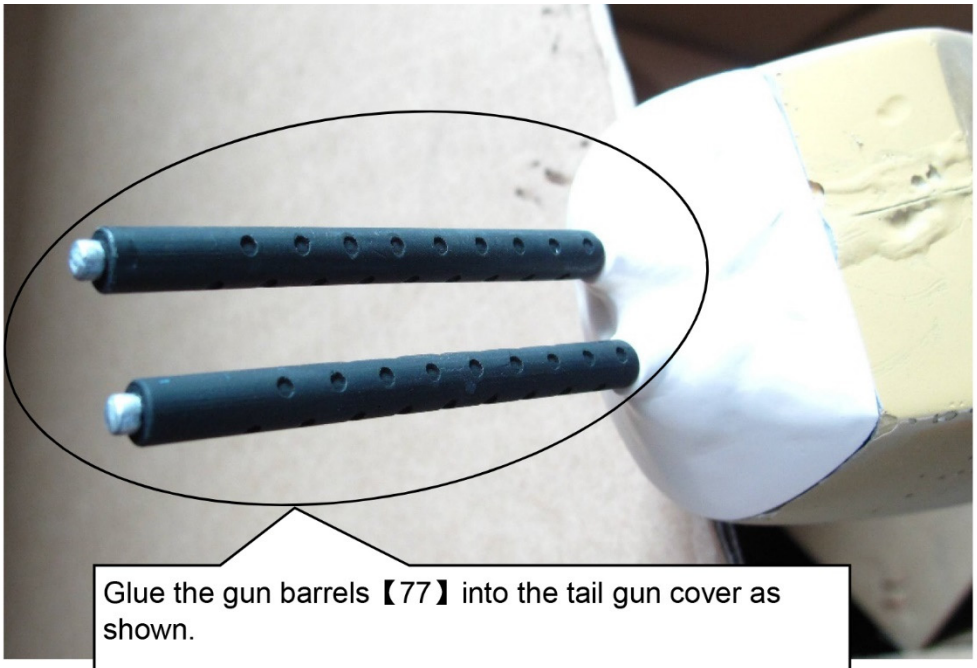
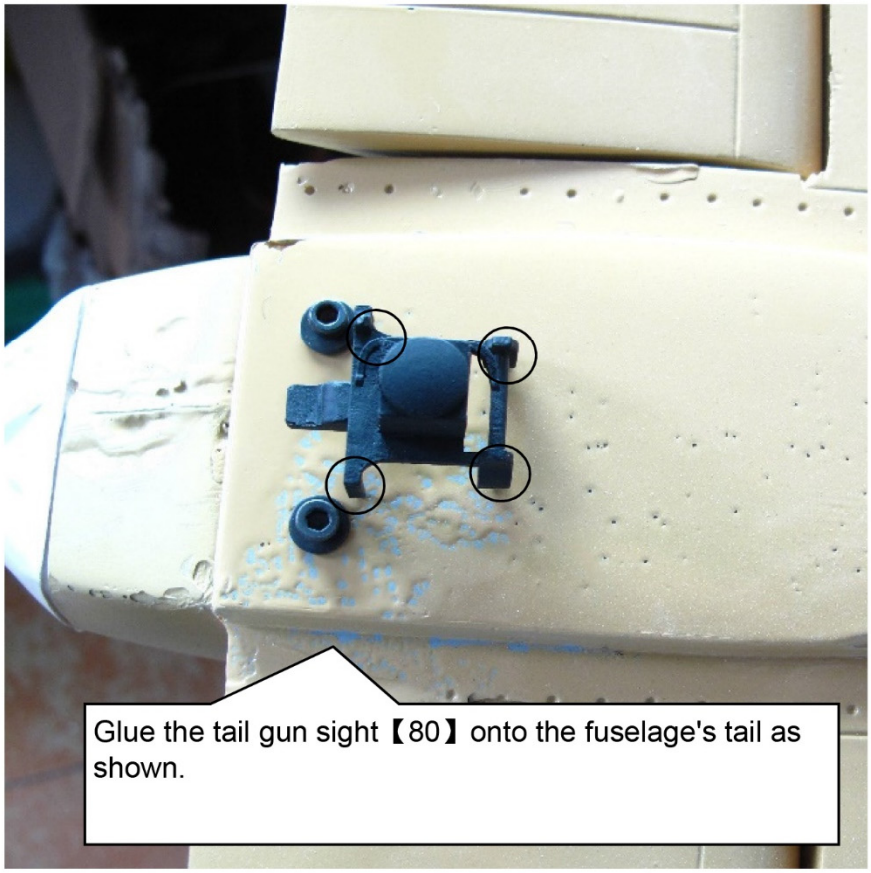


Glue the gun barrels【77】into the tail gun cover as shown.



Glue the tail gun sight【80】onto the fuselage's tail as shown.

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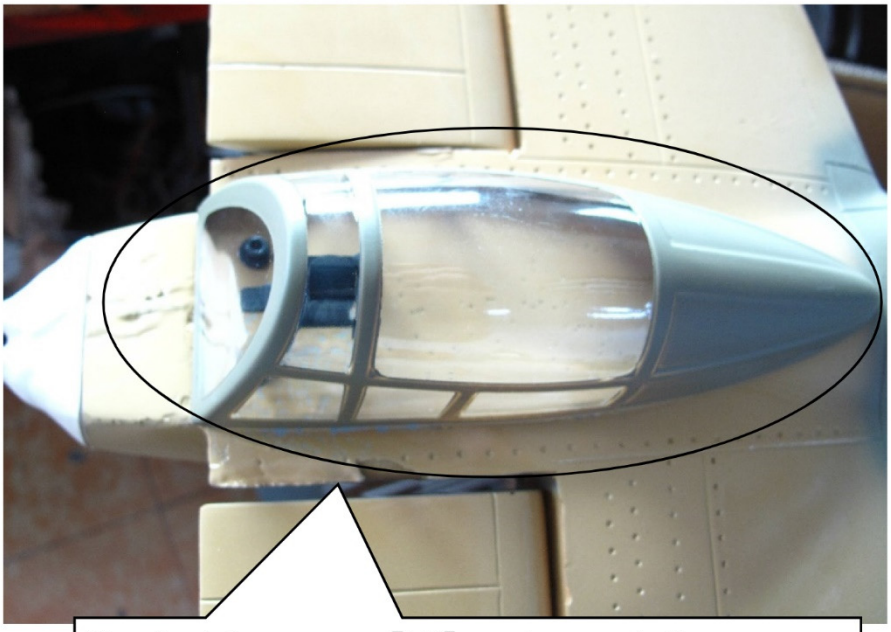
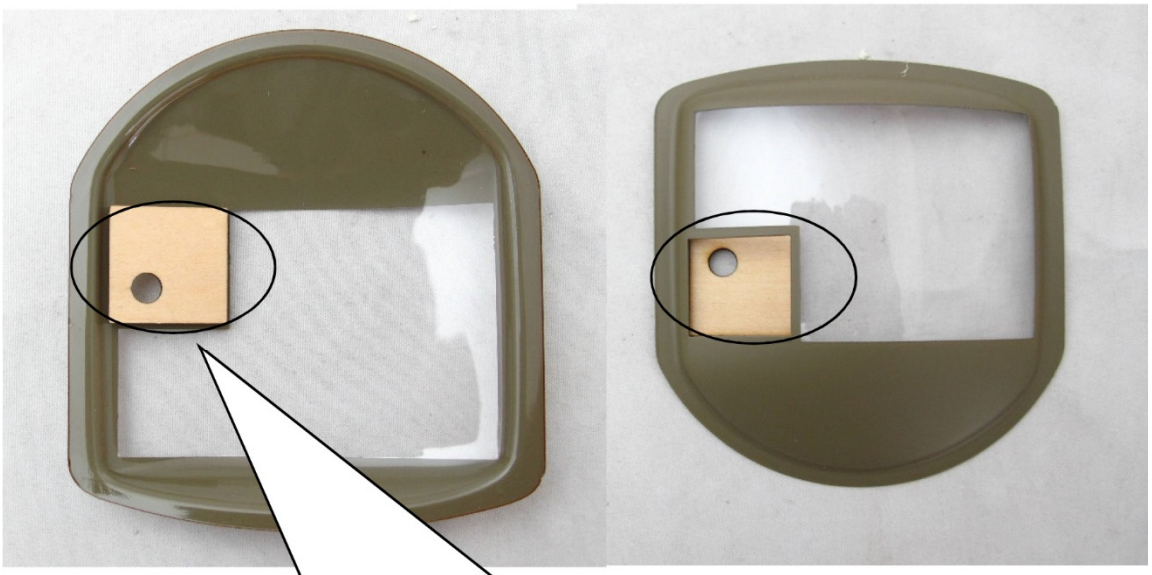


Glue the tail gun cover【53】as shown onto the fueselage's tail.

5. Side windows

Follow the steps as shown below.



Glue the gun supports【67】from inside into the side windows【83】 as shown.

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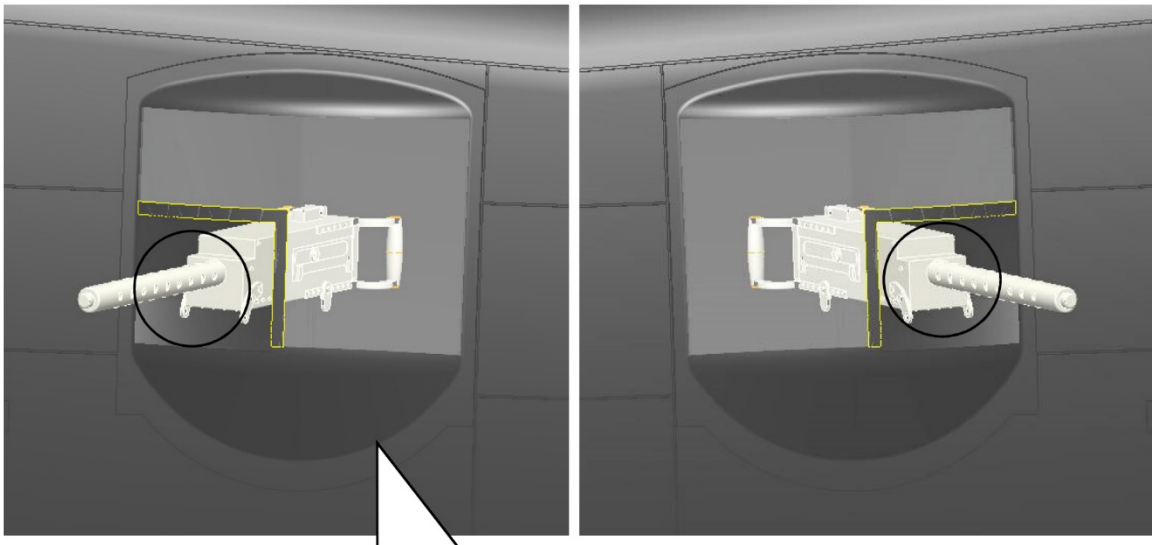
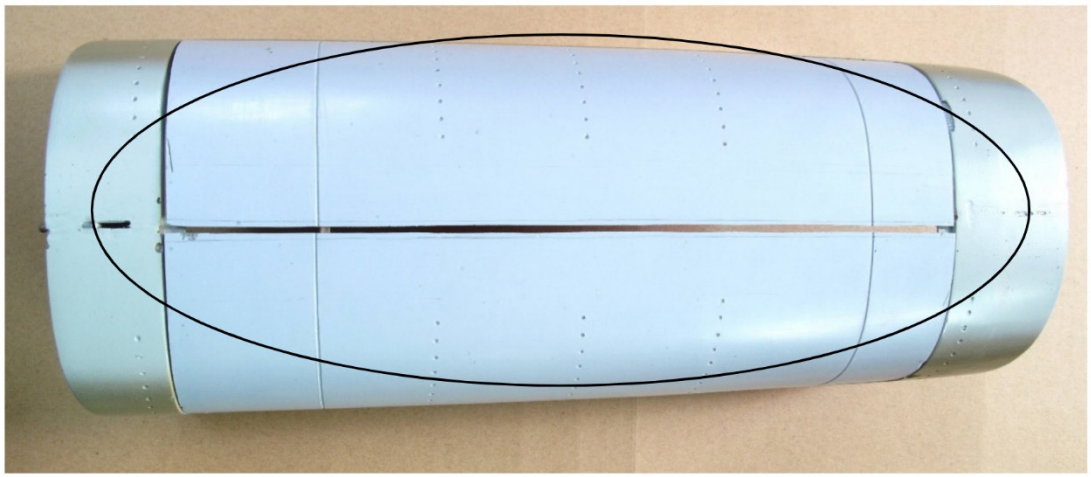


Glue both Browning guns【78】from inside into the side windows as shown.

6. Bomb bay

Follow the steps as shown below.



If you want an to make the bomb bay door operable, cut the bomb bay door with a cutter into two parts right down the middle.

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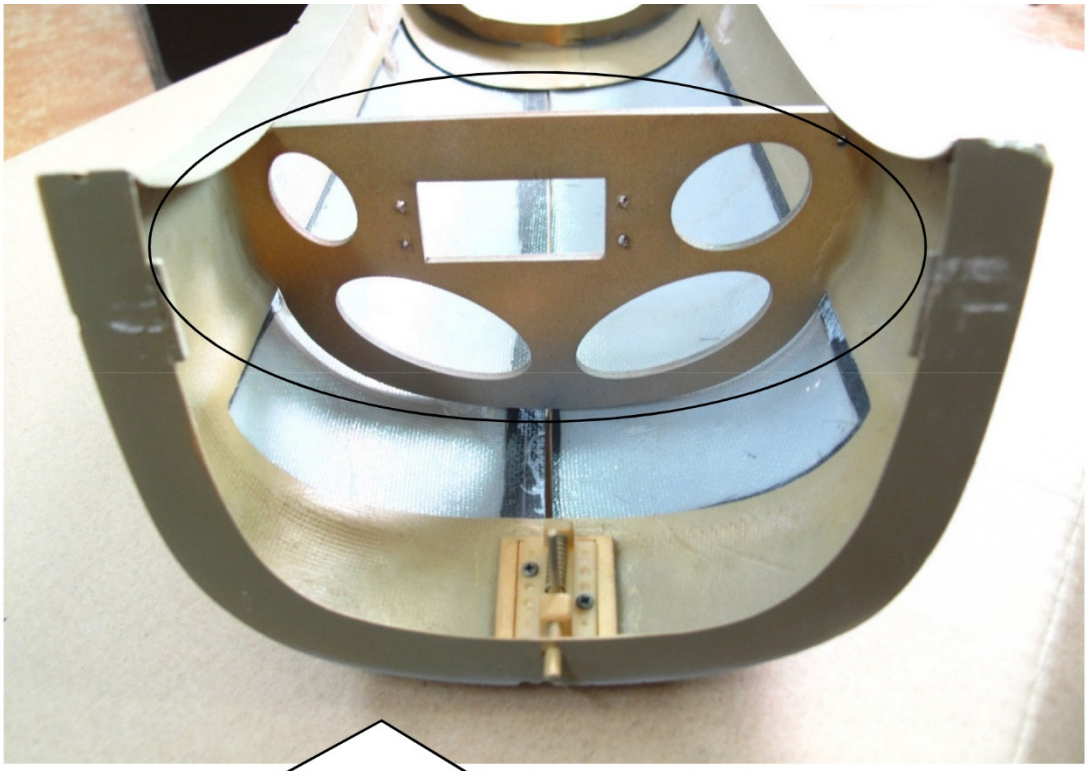
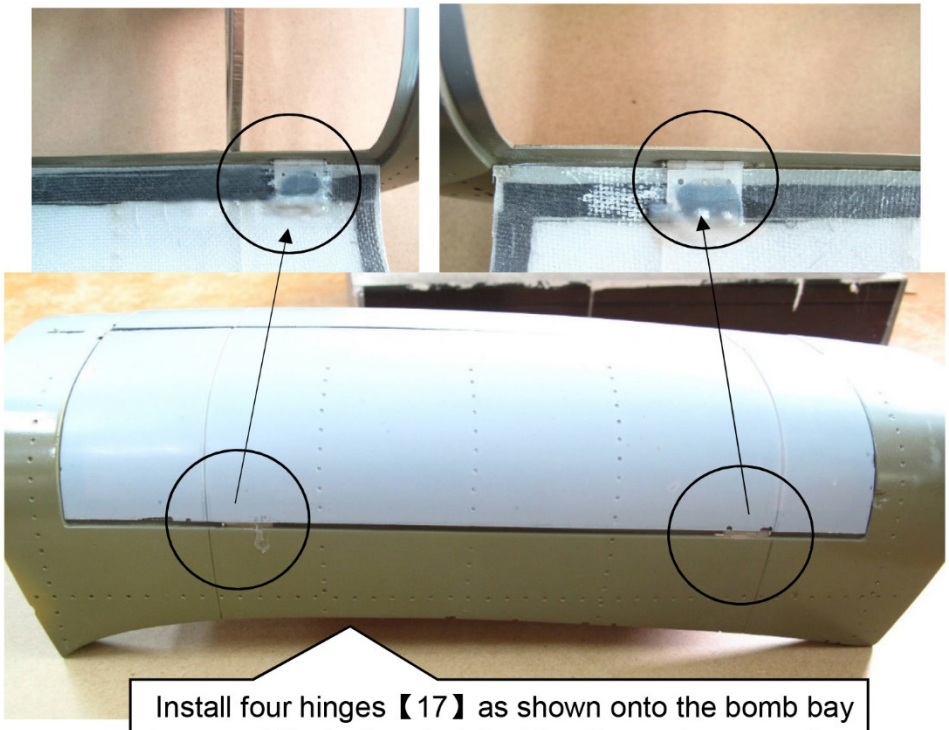


Glue the bomb bay door servo support【55】into the bottom fuselage as shown.



Install four hinges【17】as shown onto the bomb bay doors and the bottom hatch. Align the parts properly before applying glue.

7.

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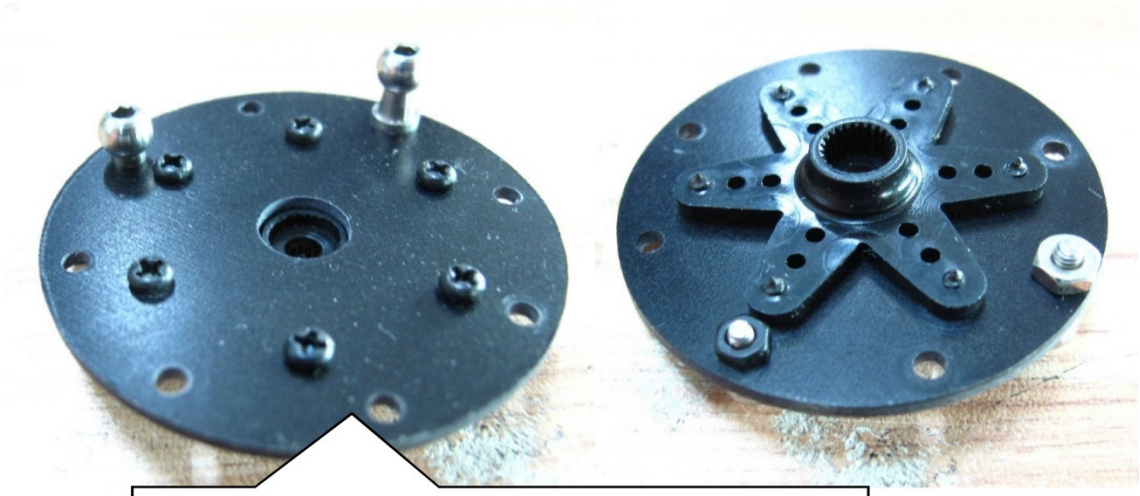
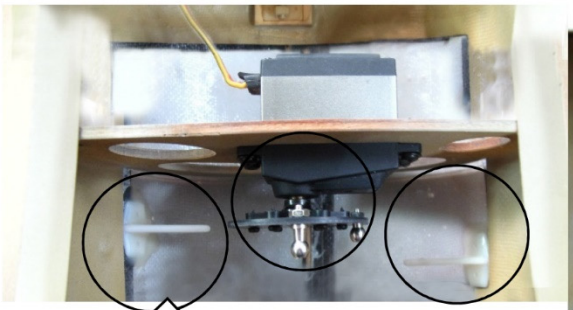
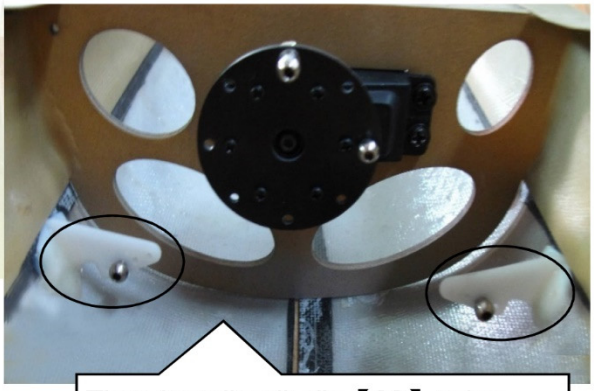


Attach you bomb bay door servo's hex horn to the servo disc【14】using screws【41】 as shown. Then install parts【02】,【03】,【04】, and【05】as shown onto the disc using Loctite.



Glue the bomb bay horns【20】onto the bomb bay doors as shown. Note: The horns must be installed out of plane as shown.



Then install uniballs【02】using nuts【04】onto the bomb bay doors

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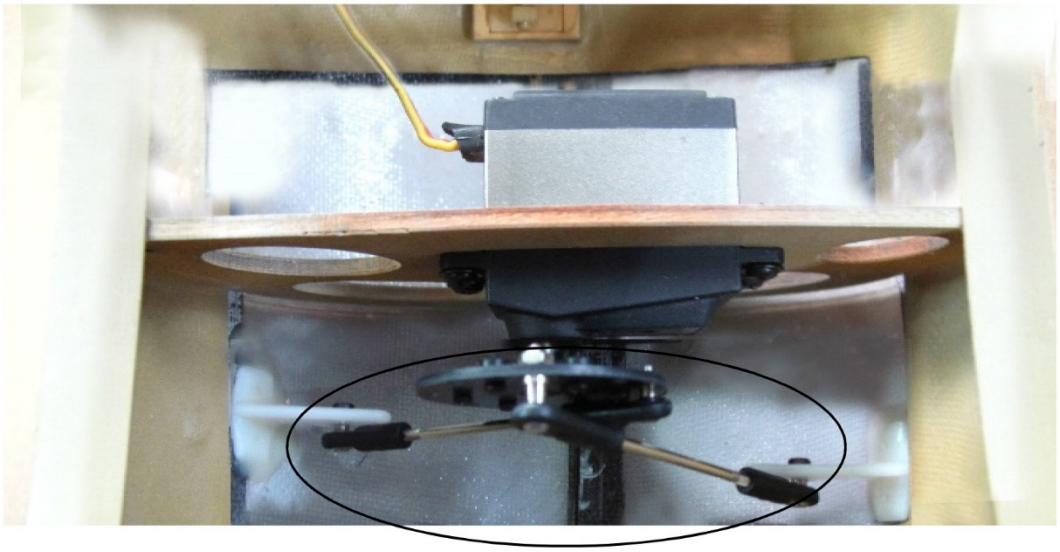

Thread four ball links【01】onto two pushrods【10】and install them as shown. Note: This way both bomb doors can cycle using a single servo.

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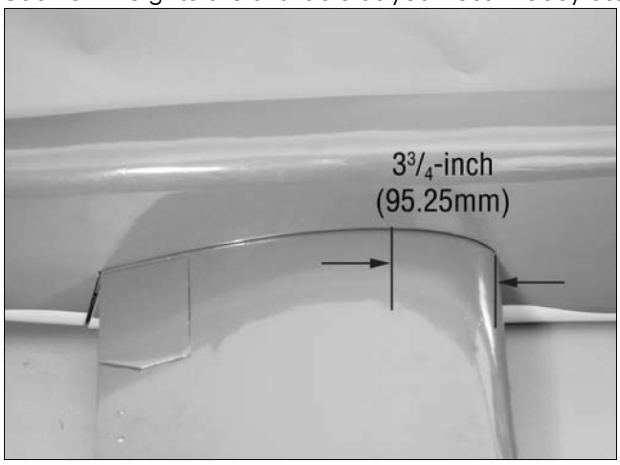
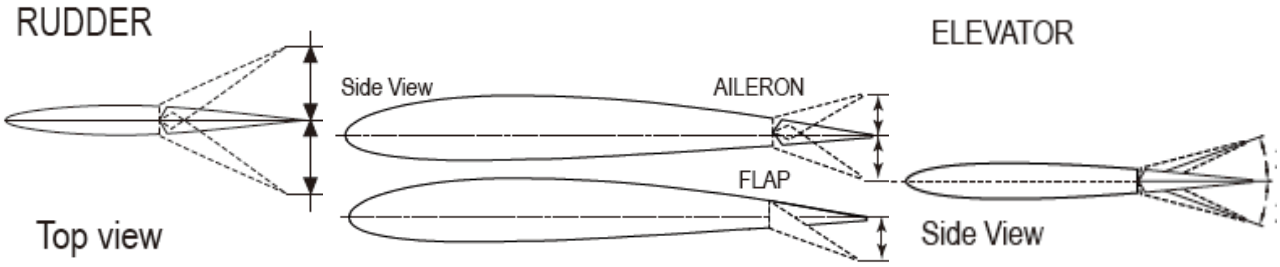
STEP 13 CENTER OF GRAVITY

1. **Recommended CG**
   An important part of preparing the aircraft for flight is properly balancing the model. This is especially important when various engines are mounted. **Caution**: Do not inadvertently skip this step! The recommended Center of Gravity (CG) location for the B-25 Mitchell is 3 3/4-in (95.25mm) behind the leading edge of the wing against the fuselage. Mark the location of the CG on the bottom of the wing as shown. Turn the airframe upright to balance. If necessary, move the battery pack or add weight to either the nose or the tail until the correct balance is achieved. Stick-on weights are available at your local hobby store and work well for this purpose.



STEP 14 CONTROL THROWS

1. **Note on control throws**
   The amount of control throw should be adjusted as closely as possible using mechanical means, rather than making large changes electronically at the radio. By moving the position of the clevis at the control horn toward the outermost hole, you will decrease the amount of control throw of the control surface. Moving it toward the control surface will increase the amount of throw. Moving the pushrod wire at the servo arm will have the opposite effect: Moving it closer to center will decrease throw, and away from center will increase throw. Work with a combination of the two to achieve the closest or exact control throws listed.



2. **Control throws**

   Elevator Low Rate
   7 degrees, 3/8-inch or 8.5mm up/down
   Elevator High Rate
   13 degrees, 5/8-inch or 16mm up/down
   Note: Elevator throw is measured at inboard end of elevator.

   Rudder Low Rate

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10 degrees, 1/2-inch or 13mm right/left
Rudder High Rate
16 degrees, 13/16-inch or 21mm right/left
Note: Rudder throw is measured at the widest part of the rudder.

Aileron Low Rate
10 degrees, 3/8-inch or 9.5mm up/down
Aileron High Rate
15 degrees, 9/16-inch or 14mm up/down
Note: Aileron throw is measured at inboard end of aileron.

Half Flap Position
20 degrees,1-inch or 26mm down
Full Flap Position
40 degrees, 1 15/16-inch or 49mm down
Note: Flap throw is measured at end of flap against the fuselage.

STEP 15 RANGE TEST YOUR RADIO

1. **Perform range check**
   Range check your radio system before each flying session. This is accomplished by turning on your transmitter with the antenna collapsed. Turn on the radio in your airplane. With your airplane on the ground, you should be able to walk 30 paces away from your airplane and still have complete control of all functions. If not, don't attempt to fly! Have your radio equipment checked out by the manufacturer.

STEP 16 PRE-FLIGHT

1. **Preparations**
   Charge both the transmitter and receiver pack for your airplane. Use the recommended charger supplied with your particular radio system, following the instructions provided with the radio. In most cases, the radio should be charged the night before going out flying.
   Check the radio installation and make sure all the control surfaces are moving correctly (i.e. the correct direction and with the recommended throws). Test run the engine and make sure it transitions smoothly from idle to full throttle and back. Also ensure the engine is tuned according to the manufacturer's instructions,and it will run consistently and constantly at full throttle when adjusted.
   Check all the control horns, servo horns and clevises to make sure they are secure and in good condition. Replace any items that would be considered questionable. Failure of any of these components in flight would mean the loss of your aircraft.

STEP 17 TAKEOFF

1. **Notes on takeoff**
   Prior to your first flight we recommend that you do some low speed taxi tests. Use these tests to center the nose wheel steering to allow for a takeoff straight down the runway. Once you have finished this be sure and take a minute to change the batteries and take one last look at the airframe to be sure all screws and control linkages are

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secure. The flaps are not needed if you are taking off from a hard packed runaway such as asphalt and even fields with short grass do not require the use of flaps. If you are taking off from a grass field that is rough or has not been mowed recently, then we recommend that you use the half flap position and allow a little extra takeoff roll before gradually feeding in up elevator. Once you have the B-25 airborne maintain a shallow rate of climb and allow the model to gain speed prior to making the first turn. The flaps should be retracted at this point and you should be entering into the normal traffic pattern. If you are using retracts then we suggest that you retract the landing gear prior to retracting the flaps. Familiarize yourself with the flight characteristics of the B-25 and practice flying the model at a safe height using both the mid and full flap positions. Be sure and reduce the throttles and allow the B-25 to slow a bit prior to lowering the flaps to the first or mid position. Then lower the flaps to the full position and adjust power to maintain straight and level flight. You will find that the B-25 does not balloon or pitch up if you allow the model to slow prior to dropping the flaps. We have found that if you follow this procedure, then you will not need to mix in any down elevator compensation.

STEP 18 LANDING

1. **Notes on landing**
   To begin the landing approach you will need to first lower the throttles and reduce your flight speed. We recommend this take place on the downwind leg and that you have the flaps in the full down position prior to beginning your turn to the base leg. Allow the B-25 to begin a slow downward decent and gradually allow the airspeed to bleed off. The idea is to loose altitude and maintain airspeed by keeping the nose down in the turn. As you begin your upwind approach use the throttles to maintain your sink rate and as you pass over the end of the runway reduce the throttles to idle and begin to add up elevator and begin your flare to landing. Should you overshoot the landing the gradually add power and use the rudders to keep the B-25 on track. Keep the flaps in the full down position and begin to set up for a second attempt.

2007 OFFICIAL AMA

NATIONAL MODEL AIRCRAFT SAFETY CODE

GENERAL

1. A model aircraft shall be defined as a non-human carrying device capable of sustained flight in the atmosphere. It shall not exceed limitations established in this code and is intended to be used exclusively for recreational or competition activity.
2. The maximum takeoff weight of a model aircraft, including fuel, is 55 pounds, except for those flown under the AMA Experimental Aircraft Rules.
3. I will abide by this Safety Code and all rules established for the flying site I use. I will not willfully fly my model aircraft in a reckless and/or dangerous manner.
4. I will not fly my model aircraft in sanctioned events, air shows, or model demonstrations until it has been proven airworthy.
5. I will not fly my model aircraft higher than approximately 400 feet above ground level, when within three (3) miles of an airport without notifying the airport operator. I will yield the right-of-way and avoid flying in the proximity of full-scale aircraft, utilizing a spotter when appropriate.
6. I will not fly my model aircraft unless it is identified with my name and address, or AMA number, inside or affixed to the outside of the model aircraft. This does not apply to model aircraft flown indoors.
7. I will not operate model aircraft with metal-blade propellers or with gaseous boosts (other than air), nor will I operate model aircraft with fuels containing tetranitromethane or hydrazine.
8. I will not operate model aircraft carrying pyrotechnic devices which explode burn, or propel a projectile of any kind. Exceptions include Free Flight fuses or devices that burn producing smoke and are securely attached to

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the model aircraft during flight. Rocket motors up to a G-series size may be used, provided they remain firmly attached to the model aircraft during flight. Model rockets may be flown in accordance with the National Model Rocketry Safety Code; however, they may not be launched from model aircraft. Officially designated AMA Air Show Teams (AST) are authorized to use devices and practices as defined within the Air Show Advisory Committee Document.

9. I will not operate my model aircraft while under the influence of alcohol or within eight (8) hours of having consumed alcohol.
10. I will not operate my model aircraft while using any drug which could adversely affect my ability to safely control my model aircraft.
11. Children under six (6) years old are only allowed on a flightline or in a flight area as a pilot or while under flight instruction.
12. When and where required by rule, helmets must be properly worn and fastened. They must be OSHA, DOT, ANSI, SNELL or NOCSAE approved or comply with comparable standards.

Radio Control

1. All model flying shall be conducted in a manner to avoid over flight of unprotected people. I will have completed a successful radio equipment ground-range check before the first flight of a new or repaired model aircraft.
2. I will not fly my model aircraft in the presence of spectators until I become a proficient flier, unless I am assisted by an experienced pilot.
3. At all flying sites a line must be established, in front of which all flying takes place. Only personnel associated with flying the model aircraft are allowed at or in front of the line. In the case of airshows demonstrations straight line must be established. An area away from the line must be maintained for spectators. Intentional flying behind the line is prohibited.
4. I will operate my model aircraft using only radio control frequencies currently allowed by the Federal Communications Commission (FCC). Only individuals properly licensed by the FCC are authorized to operate equipment on Amateur Band frequencies.
5. I will not knowingly operate my model aircraft within three (3) miles of any preexisting flying site without a frequency-management agreement. A frequency management agreement may be an allocation of frequencies for each site, a day-use agreement between sites, or testing which determines that no interference exists. A frequency-management agreement may exist between two or more AMA chartered clubs, AMA clubs and individual AMA members, or individual AMA members. Frequency-management agreements, including an interference test report if the agreement indicates no interference exists, will be signed by all parties and copies provided to AMA Headquarters.
6. With the exception of events flown under official AMA rules, no powered model may be flown outdoors closer than 25 feet to any individual, except for the pilot and located at the flight line.
7. Under no circumstances may a pilot or other person touch a model aircraft in flight while it is still under power, except to divert it from striking an individual.
8. Radio-controlled night flying is limited to low performance model aircraft (less than 100 mph). The model aircraft must be equipped with a lighting system which clearly defines the aircraft's attitude and direction at all times.
9. The operator of a radio-controlled model aircraft shall control it during the entire flight, maintaining visual contact without enhancement other than by corrective lenses that are prescribed for the pilot. No model aircraft shall be equipped with devices which allow it to be flown to a selected location which is beyond the visual range of the pilot.

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